FOOD FOR PEOPLE

Margaret G. Reid

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FOOD FOR PEOPLE

By

Margaret G. Reid

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Food for people

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Preface

THIS book is concerned with food, families, and economy as a whole. The social objective visualized is an abundant food supply for all. The existence in peace time of malnutrition and restriction on food production has challenged responsible leaders to discover ways of securing fuller utilization of resources. The war has brought many problems of producing adequate supplies and meeting shortages that arise.

The book is divided into three main parts. In the first part production is examined. The expansion of commercial production is discussed with special reference to changes in method and their bearing on nutrition and social control. Considerable space is given to food production carried on by families for their own use. In the second part food consumption is discussed, attention being directed mainly to its status and to the factors affecting it, including price, income, and education. Status of nutritional health is examined. In the third section current problems bearing on food are considered, for example, taxes on food, the ever-normal granary, soil conservation, the food stamp plan, advertising, sanitation, grading, restraints of trade. Finally, controls to meet wartime food problems are discussed.

Attention throughout the book is concentrated on understanding situations. As a result, it has been necessary to draw on many sciences, on economics, psychology, nutrition, and on other subject-matter fields.

Those acquainted even vaguely with the ramifications of these topics will know that no one book on the subject can do more than deal broadly with important issues. It is hoped, however, that the discussion will serve to quicken the interest in placing welfare with reference to food more clearly before those whose decisions direct our economy, both those in private enterprise and those responsible for government policy.

The book should be of value to all interested in economics and social policy as they impinge on consumers. To those working in the field of consumption, it should provide a comprehensive introduction to food. Food producers, both agriculturalists and manufacturers, should find much to interest them in the discussion of market practices, market trends, food preferences, and ways of increasing adequacy. And, finally, it is felt that much of the discussion should be useful to nutritionists who feel the need of visualizing more precisely the status of food habits and factors influencing them and the various programs designed to bring about improvement in dietary habits.

The author wishes to express her appreciation to the many people who have contributed to this analysis. Assistance on aspects related to the sciences of chemistry, bacteriology, and nutrition was received from Dr. R. E. Buchanan, Dr. B. W. Hammer, Dr. W. J. Shannon, Dr. Margaret A. Ohlson, Dr. Pearl P. Swanson, Professor C. A. Iverson. Many colleagues in the social sciences have made valuable contributions. The author especially wishes to thank Dr. A. Kozlik for his suggestions on Chapters 13 and 15, Dr. H. V. Gaskill for suggestions on Chapters 10 and 11, Dr. G. S. Sheperd for suggestions on Chapters 29 and 30, Dr. Mary Jean Bowman for suggestions on Chapters 2, 4, 10, 11, and 31, and Miss Elizabeth Fautz for suggestions on Chapters 22 and 25.

MARGARET G. REID

Ames, Iowa
January, 1943

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I

Introduction

1

Food in the National Economy

THE role of food in the migration of peoples, in tragic, devastating wars, in the rise and fall of nations, makes a fascinating story. Hundreds of queries arise concerning half-told tales. Why did the Neanderthal man disappear from the face of the earth? Did the unfortunate combination of cave dwelling, foggy weather, and a diet poor in Vitamin D lead to a rachitic condition, making child-bearing hazardous and enfeebling the race as a whole? Did the successive hordes of conquering people who swept out of Asia into Europe come mainly because of prolonged droughts which forced mounted warriors with their caravans and herds to press westward in search of pastures? Did the amazing adventures and exploits of Genghis Khan find their initial spark in the search for food? And to come closer to the present: To what extent has the military policy of Germany been affected by a desire for more adequate food supplies within its national economy? Will the United States because of her food reserves be able to play an important part in establishing a lasting peace?

The wandering of the humble potato, its spread from equatorial regions to hinterlands far within the Arctic Circle, the increased population coming in its wake, when visualized over centuries, bear a hint of magic. So also does the story of spices and their role in the development of trade and national power.

The Food Problem of the United States

Critical moments with respect to the food supply characterized the early settlements on the Atlantic seaboard. Again and again isolated communities were decimated by the dread scourge of scurvy. Incidents are vividly portrayed by Bell:[1]

> The Salem settlement was all but destitute of food. Eighty of the Endicott colony had perished in the last year from the old enemy, scurvy, which had run so disastrously through the Plymouth plantation ten years before.

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[1] M. Bell, *Women of the Wilderness,* 1938, p. 163.

Increased knowledge of foods suitable for human consumption and greater variety in foods produced plus improved transportation between regions have eliminated the specter of famine in Western countries so long as trade relations are maintained.

Cases of pellagra in Southern communities or of scurvy in Maine[2] still occur. But for the most part extreme food deficiencies are newsworthy because of their rarity. Food habits to promote perfect health now occupy the center of the stage. Attention has shifted from the obvious fact that "an army marches on its stomach" to the conviction that food governs alike the strength and determination of the fighting forces, the alertness of children at school, and the output of the worker on the assembly line. The present food problem, at least as it exists in the United States, is well described by the Mixed Committee of the League of Nations.[3]

> Throughout many parts of the world, it practically ceased to be a problem of hunger and became rather a problem of nutrition. It is, of course, impossible to say exactly when this transition occurred; the process was gradual and imperceptible. It is, however, sufficient to compare our present preoccupations about the qualitative adequacy of diets even with the famines which decimated whole communities even as late as the first half of the nineteenth century, to realize the enormous progress that has taken place.

The maintenance of a high level of health now occupies the foreground. In describing the change which has occurred, Nourse[4] in his study, *America's Capacity to Produce,* states:

> Poverty has always been the lot of the great majority of mankind. It has been only within the very recent past that geographic exploration and scientific development have encouraged the human family seriously to entertain the idea that life could be so organized and conducted as to achieve general well-being.

Interest in a Higher Standard of Nutrition

The defense program launched in 1940 has popularized the slogan: "The strength of a nation depends on the strength of the people." Again and again the idea has been voiced that a people can be expected to accept democracy as good only if democracy makes it possible for them to have a decent standard of living. The role of food in achieving strength and inducing satisfaction with the existing economic system has been much emphasized in the defense and war literature. At the same time the fact has been broadcast repeatedly that the United States with all its productive capacity has a third of its population far below optimum nutrition. Better nutrition has had conferred on it the rank of a major national problem. But this recent burst of interest has extensive roots, deep and well nourished over decades, the convergence of events having served merely to quicken and heighten the interest.

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[2] Maine is cited here only because of a recent news story noted. The author has no reason to assume that similar cases are not just as common in many other states.

[3] Final Report of the Mixed Committee of the League of Nations, *The Relation of Nutrition to Health, Agriculture and Economic Policy,* 1937, p. 97.

[4] E. G. Nourse and others, 1934, p. 1.

This increased interest in higher food standards emanates from several groups. Especially in the public eye during the thirties had been agitation by agricultural groups for improved diets. The marked fall in farm prices, which during the depression brought farm income in many communities to very low levels, aroused farmers and those concerned with farmers' interests to ask, "Why are farm prices so low?" "Why have they fallen so much more than other prices?" "Are prices low because farmers are producing more foods than people need?" "Or are they low because many people are unable to buy necessary foods?" "Do other factors than low income account for failure to consume an adequate diet?" Studies made in recent years have revealed widespread dietary inadequacies. Farmers, as a consequence, have maintained that the existing level of food supplies is "needed" and that something be done to see that people who need food get it.

Other groups directly concerned with welfare are also active. Quietly and persistently pressure from them has been felt. Never before have physiologists and nutritionists more convincingly demonstrated that food, both kind and quantity, affects health and through it every aspect of life: the power to participate intelligently and vigorously in the work of the world and the power to explore the manifold experiences which life affords. In stimulating an interest in "adequate diets" and in bringing people to higher nutritional levels, it seems highly probable that an interest in welfare, combined with the march of science, clearing away the fogs of ignorance, will continue to be of even greater importance than the desire of farm groups for larger income.

Good health ranks high among the things desired by American people. In fact it has almost achieved the status of something to which public opinion concedes everyone is entitled. Scientific advances which have already brought an increase in length of life have served only to reinforce this attitude. They have strengthened the belief that health and vigor in large measure are subject to control, that they are something to be bought for a price.

Between the desirable, as measured by science, and the actual already achieved, a great gulf yawns; they constitute two different worlds with only a limited area in common. Nutritionists in the past have devoted their major efforts largely to telling people what they should eat rather than to discovering what they do eat and pointing out the effect of existing food-consumption habits on health and physical development. Recent studies have investigated nutritional health and actual food consumed; many others are in progress. The deficiencies revealed have been challenging. Something clearly undesirable exists which must be changed. In a program for better food, nutritionists have been joined by many others interested in welfare as well as by farmers whose interest is centered on income.

A program succeeds best when based on an understanding of present practices and procedures which it presumes to modify. The whys and wherefores of present diets, as a consequence, are important. How to explain existing adequate and inadequate diets? How can the frequency of inadequate diets be decreased and that of the adequate diets be increased? What is likely to be the outcome of various proposals? Considerable space in the chapters which follow will be devoted to these questions.

The Importance of Food

The importance of food can be measured by the productive resources assigned to it. In every economy, the provision of food has always occupied a major place. The National Resources Committee[5] estimates that 34 per cent of total "expenditures" goes to food. Included in this figure are foods furnished by farm families for themselves. In addition food preparation and serving are still major household activities.[6] And "homemaking" constitutes the occupation of approximately one-third of the adult population.

When all food production is considered, it is probable that close to 37 per cent of our productive resources are used in making food available. Moreover, this condition exists in our society, which has very large per capita productive resources. In less wealthy societies, such as China, it is estimated that as high as 90 per cent of total productive resources is used to provide food.

It seems rather trite to point out that food is an essential of life; that, were a people entirely deprived of food, life would soon become extinct; and that both the kind and quantity of food are of vital importance. But even though food has been given first place on the list of products needed, it must be remembered that life is more than food, and even that maximum health is not the only condition contributing to welfare. In spite of its overwhelming importance as a basic essential, one must not lose sight of the place of other things in the total scheme of living. Changes in food consumption must be seen constantly in relation to the other things which people want, and all wants must be examined in relation to productive resources as a whole.

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[5] *Consumer Expenditures in the United States, 1935–36.*

[6] M. G. Reid, *Economics of Household Production,* 1934, p. 82.

Economics, A Positive and a Normative Science

Robbins[7] has defined economics as "the science which studies human behavior as a relationship between ends and scarce means which have alternative uses." This definition is especially useful in visualizing economic problems since it emphasizes the fact that because of scarcity economy is necessary. Were present techniques of production fully used, scarcity as it has been known in the past would be replaced, to be sure, by relative abundance. Even so, all desires cannot be satisfied; so thought must be given to selecting goals carefully and to using resources so that no idleness occurs.

In studying the relation of food economics to welfare it is well to distinguish the positive and the normative aspects of economics. As a positive science economics is confined to cause-and-effect relationships without thought of whether results are good or bad, whether any possible condition is better than another. It worships only the spirit of wonder; it aims only at enlightenment. In itself it seeks to achieve nothing. Explanation alone is the goal.

A normative science on the other hand is concerned with ideals as distinguished from actuals. It is permeated by the spirit of control, and its goal may be improving the lot of mankind. As such it defines ends and works out the relation of means to these ends.

In economic analysis it is commonly assumed that productive resources should be put to their most important use and that waste is undesirable. In which case maximum returns from a given stock of productive resources is the accepted ideal of norm. One condition is said to be better than another because it brings a larger product. Such analysis is, however, usually confined to ends and means organized through the exchange system, wherein costs and returns from alternative methods are measured in terms of money. One method is commonly said to be better than another if, for example, by using the same resources a higher value product can be secured.

But maximum production measured in money is a very meager goal. Maximum welfare is of much greater importance. MacFie[8] writes:

> When we think of welfare we hardly think on economic rails at all. . . . We think of health, or temperance, or education, or em-

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[7] L. C. Robbins, *The Nature and Significance of Economic Science* (2d ed.), 1937, p. 16.

[8] A. L. MacFie, *An Essay on Economy and Value*, 1936, p. 13.

> ployment, . . . or overcrowding, or political responsibility. Each of these is rather physiological or ethical rather than economic.

In order to direct the use of productive resources intelligently norms must be set up. Physiologists and nutritionists certainly would have an important part in setting up food norms. Philosophers and other social theorists would have a part in appraising the relative importance of various objectives. Since life is not wholly a blind, accidental process, the more clearly norms are defined and the more fully they are accepted by society in general, the more likely they are to be achieved. The rule of economics in this process has been described by MacFie[9] as follows:

> Using the apparatus and results established by positive economics, we should work out the economic changes necessary in order to alter the economic system in the direction of a more ideal society.

Much economic analysis is half-consciously directed to a vague concept of general welfare. In this discussion an attempt will be made to keep the objective to the forefront. At all times the standard or norm of welfare should be looked upon as dynamic, not static. It should change as increase in knowledge or change in productive resources makes it desirable to modify previously accepted standards. The transition will be toward a more efficient society and a knowledge of positive economics will assist in choosing the techniques to effect the changes desired.

Waste and Inefficiency

Only when we set up norms are we in a position to talk about waste. With general welfare as a goal four types of waste are readily distinguished.

1. Waste occurs if there are unused productive resources. Under some circumstances contribution to welfare necessitates an increase in time devoted to leisure and a decrease in time devoted to labor. Since the benefits from increased leisure may be greater than the benefits from additional goods made available from longer hours of work, voluntary and involuntary leisure must be put, of course, in very different categories. But the restriction of output of one product without at the same time shifting resources, including workers, to more important uses, would be considered wasteful.

2. Waste occurs if inefficient methods are used. Pigou[10] describes this as technical waste. He says: "In some or all their uses, productive resources are operated in an incompetent manner; . . . with more intelligent arrangements a given volume of them might be made to yield a larger

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[9] *Ibid.*, p. 79.

[10] *Economics in Practice*, 1935, p. 33.

output." Technological advance has been made, but much waste of this type occurs nevertheless. Ignorance is a major factor in causing inefficient methods. But inventions designed to increase efficiency are suppressed at times and much duplication and other types of waste result.

3. Waste occurs if productive resources are being devoted to turning out a given product when others would contribute more to maximum welfare even though no change is made in distribution of income. For example, a society might be better off if more productive resources went to providing dairy products and less to providing sugar; if more went to fresh fruits and vegetables and less to tobacco. Such waste arises from consumers not knowing what is "good for them" or from the productive system failing to reflect consumer preference.

4. Waste occurs if rich men are eating to excess while poor men are starving. Pigou[11] believes:

> The reason why widely unequal distribution of income is an evil is that it entails resources being wasted, in the sense that they are used to satisfy less urgent needs while more urgent needs are neglected. Obviously the evil is a very grave one. It is particularly grave in its effects on the young; for, in so far as poverty deprives the children of the poor of proper nutrition and of educational opportunities, it weakens their earning power later on, and so tends to perpetuate itself.

The causes of waste thus may lie in all three parts of the economic process—in production, distribution, and consumption. Some difficulty arises in appraising that waste occurring because of "faulty" distribution of income or because of "wrong" choices. The test of efficiency in production lies in the quantity of goods that alternative methods will provide and in the existence of idle resources. If another method of organizing productive resources will bring a greater or a better product, then that method, by this test, is better than the existing one. But without a precise measure of welfare and more knowledge than is now possessed concerning the effect of consumption on the welfare of individuals and groups, statements that more of this good and less of that, would be better for a given group of people or that society would be better off if the income of one group was decreased while that of another was increased, are likely to be classed as mere opinion, not susceptible to scientific proof. Incontrovertible logical proof cannot be established concerning the extent of many types of social waste.[12] Nevertheless investigation of scales of living and physical examinations of people provide an acceptable basis for some action. Armchair arguments should not blind society to concrete conditions that can be observed.

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[11] *Socialism versus Capitalism,* 1937, p. 21.

[12] For discussion of this issue see R. F. Harrod, "Scope and Method of Economics," *Econ. J.,* Vol. 48, September, 1938, pp. 383–412.

Waste with Respect to Food

So far we have been considering waste in the economic system in general. The picture changes little when waste in relation to food is considered. It is still necessary to consider the interrelations of industries as well as the interrelations of goods and people. Waste in food thus occurs:

1. If there are resources idle that can be used only in food production.
2. If inefficient methods occur in the use of these resources.
3. If productive resources are being utilized in making products other than food available which would contribute more to welfare if they were transferred to the production of food, and conversely if productive resources are being used for food which might better go to some other use.
4. If the "wrong" foods are produced.
5. If, because of distribution of income, some groups are inadequately nourished while others have an adequate diet plus purchasing power for many relatively "unimportant" items.

Since poor diets have a measurable physiological effect and the types of nutrients needed and possible sources of these are known with considerable certainty, judgment concerning the rightness of choice and the desirability of a changed distribution of income in order to increase adequacy of food is likely to give rise to less controversy than similar judgments with respect to other goods, for example, those for recreation purposes.

The basic point of view throughout this book is the maximization of welfare with special attention to food. It is recognized that no cut-and-dried answers can be given to many questions raised. Nevertheless action is called for, and action programs are under way. Decisions must be made on the evidence at hand, and the need for study and revision of policies is continuous.

2

Toward Better Diets

> *We want to make sure that everyone in the United States has in his diet enough energy, enough bone, blood and muscle-building food, enough vitamins to give that feeling of health plus. . . . We want to make sure that our millions are so fed that their teeth are good, their digestive systems healthy, their resistance to premature old age enhanced through strong bodies and alert minds.*
>
> —HON. HENRY A. WALLACE, Vice-President of the United States

MALNUTRITION is widespread. But "hidden" rather than "hollow" hunger threatens to lower the zest for living and to sap the productive capacity of workers and the stamina of the armed forces. It brings "days off" for illness and chronic fatigue and shifting pains. Over and over again in recent years attention has been drawn to defective diets which occur at all income levels although with greater frequency among low- than among high-income families. Consequent social losses although incalculable are probably very large. Furthermore, our knowledge of nutrition and the productive capacity of the nation make them wholly unnecessary.

Neither the exact social cost of poor diets nor the benefits from greater nutritional health can be expressed in dollars and cents. Dickens,[1] in discussing the nutritional problems of families of the South, describes the dilemma of measurement thus:

> We of the South know a great deal about how it pays to increase the productivity of the land. What do we know about how much it pays to increase the productivity of man? We can tell a farmer how much he gains by adding fertilizer but can we tell him how much he gains by adding milk and cabbage to the diet of his family.

The increased cost of achieving optimum nutrition might be borne by families or by the state. The level of nutritional health to be achieved depends on what we are willing to pay for. With relatively little effort all deficiency diseases could be eliminated. The goal of optimum nutrition presents a greater challenge. Science has conferred on present-day society a gift of nutritional knowledge and of production methods greater than that possessed by any other people. This knowledge now calls aloud for action.

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[1] D. Dickens, "Health and Prosperity in the South," *J. H. Ec.*, June, 1938, p. 371.

A National Nutrition Conference[2]

In May, 1941, a National Nutrition Conference met in Washington, D. C., to consider what could be done about malnutrition. To facilitate the examination of factors affecting the quality of diets, nine sections were set up. The titles of these sections in themselves suggest the many ramifications of means of improving diets:

I. Research and National Nutrition Problems.
II. Economic Policy and Social Responsibility as Related to Nutrition.
III. Public Health and Medical Aspects of Nutrition.
IV. Nutrition of Workers in Defense Industries.
V. Methods of Education in Nutrition.
VI. Professional Education in Nutrition.
VII. Nutrition Problems in Distribution and Processing of Foods.
VIII. Community Planning for Nutrition.
IX. Nutrition Problems of Group Food Service.

The total program outlined at this conference made clear that adequate diets depend on (1) the stock of productive resources and the efficiency with which they are used in making all types of goods available; (2) the extent to which resources are used for food instead of for the production of other things; (3) the distribution of purchasing power and products; and (4) wisdom and efficiency of consumers.

Teach Consumers To Use Their Resources Wisely

Malnutrition can in part be laid to consumers' underrating the importance of nutritional health. Some families may put optimum nutrition very high in their scale of preference. Others may deliberately cut their food budgets, sacrificing foods that they are willing to acknowledge would contribute to nutritional health, in order to have money for soft drinks, silk stockings and movies, for example. Or some consumers may eliminate high-quality foods in order to achieve a slender figure. Furthermore, sensory and aesthetic enjoyment from food may be rated above nutritional health. The benefits accruing from nutritional health in many cases need to be stressed as well as the contributory factors. The latter would include the nutrients consumed, the regularity and speed of eating, as well as the sensory enjoyment which stimulates good digestion.

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[2] See *Proceedings National Nutrition Conference for Defense, May 26, 27, 28, 1941*, Fed. Security Agency, 1942.

Nutritional experiments, contemporary consumption studies, and history have all served to dispel the idea that appetite and instinct are infallible guides to wise choice of foods. In summing up why diets are inadequate, Stiebeling[3] states:

> The discrepancy between current popular diets and the type of diet that our present knowledge of foods and nutrition would recommend seems to be due to several factors. Chief among these are food habits, some old, some comparatively new; a too general lack of appreciation of the importance of an adequate diet; and inadequate knowledge of food needs and food values in relation to cost. Equally important is the lack of purchasing power on the part of many urban families, and, especially in the case of rural families, insufficient success in planning and carrying out a food-production program designed to complement food purchases.

Consumers need more information concerning nutrients essential to optimum health, the foods in which they are found, and the most economical sources. For some groups the place of synthetic mineral and vitamin compounds should be considered. All in all, efficiency in choice and market selection calls for extensive knowledge.

Wide differences exist in the relative cost per pound of the fancy, choice, and standard qualities of foods; of specified quantities of proteins, vitamins, and other nutrients secured in various foods.[4]

Low-cost foods in some cases are underrated by consumers, some of whom mistakenly think grade A canned vegetables rate higher in nutritive value than grade C and that cheaper cuts of meat are less nutritious than the expensive cuts. Evaporated milk is a low-priced protective food, the consumption of which has been expanding rapidly. There has been increasing acceptance of evaporated milk but little tendency to increase the consumption of skimmed milk and buttermilk products. Some persons have a mistaken notion that there is little food value once the cream has been removed.

Advice on what to eat to improve nutrition without unnecessary cost should be coordinated with both market supplies and prices. Much of the advice to use whole grain cereals has been ineffective probably because satisfactory products have not been available. Care should be taken to adjust advice, in so far as possible, to existing preferences and prejudices. If this is done resistance to suggestions for improving dietary habits will be minimized.

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[3] *1939 Yearbook of Agriculture,* p. 130.

[4] See, for example, H. Stiebeling and M. M. Ward, *Diets at Four Levels of Nutritive Content and Cost,* U. S. Dept. Agr. Cir. 296, 1933, pp. 42–3; M. M. Kramer and B. L. Kunerth, "Relative Economy of Different Forms of Milk," *J. Am. Diet. Ass.,* Vol. 11, 1935, pp. 318–21; F. L. Gunderson, "Nutritional Economics of Dietary Calcium," *Am. J. Public Health,* Vol. 27, 1937, p. 570; E. W. Hager, "Vitamin C and the Cost of Food," *J. Am. Diet. Ass.,* Vol. 14, 1938, pp. 354–6.

Education to direct choice of food is highly important. American diets in large measure are not drawn from the least expensive sources; hence much improvement is possible without increasing food expenditures. At the present time, some families with very low expenditures manage to secure adequate diets; others with much larger expenditures have very inadequate diets; and some malnutrition occurs even in the high-income levels. The frequency of poor diets declines, however, with increase in income.

Instruction in food preparation is important on two scores. At the present time valuable nutrients are lost because of cookery methods used, for example, much of the vitamin and mineral content of vegetables. In addition the consumption of protective foods in many cases is low because the housewife has never learned how to prepare them so they are enjoyed by members of the family.

In some cases wise use of resources necessitates an increase in family processing of food: homecooked in place of ready-to-serve cereal; homemade bread and cake rather than those from a baker. Families need help in evaluating the relative economy of making versus buying. For many farm families an increase in production of basic foods for their own consumption is considered desirable, especially such things as fresh fruits and vegetables, poultry and dairy products. Family production of this sort is stressed in the program of the Farm Security Administration. Probably it should be given further attention in other farm programs, and many rural non-farm families might improve their diets in this way.

Many studies indicate that consumers get much less for their dollar than they might if they were more competent in market selection. Improved knowledge of where and when to buy, how to recognize quality desired, how to evade the intent of those using deceptive selling practices, may save many dollars that can be used to raise the quality of diet.[5]

Improvement in consumer education along the lines indicated may necessitate many curricular changes in order to reach all children in schools, boys as well as girls. In addition it should reach out to the adult population through many channels—through nurses, doctors, dieticians, public welfare workers, and many others. Instruction, without doubt, can be improved in many ways, as in the selection of subject matter and the techniques of presenting it and in relating advice to family food habits and local products and prices. Perhaps it is most important at the present time to scrutinize the educational facilities available for different groups, especially for those families where the probability of poor diet is relatively high and where, as for young children and pregnant women and nursing mothers, the effects of malnutrition are likely to be especially disastrous. Where the need is very great, education through personal instruction of clients may be the most desirable form. In view of the low level of diets in villages, it is well to consider whether this group especially has not been neglected. Schools in many large cities have nutritional programs that reach adults. The Agricultural Extension Service, financed in large measure by federal funds, reaches rural families. Some of the low-income farm families, which in many states are poorly represented in the home projects of the Extension Service, are now receiving individual attention through the Farm Security Administration.

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[5] For extended discussion see Chapter 18.

Questions are at times raised concerning the role of certain government agencies in consumer education. At one time an attempt was made to prohibit an employee of the U. S. Department of Agriculture saying anything that would tend to limit the consumption of any wholesome food even though it promoted the consumption of another food equally wholesome and perhaps more nutritious. Nutritional education would be largely meaningless if the relative advantage of various foods were not indicated.

Improve Selling Practices [6]

Consumers who are better informed about such things as food values, costs, and prices will tend to use their time and money more wisely. More efficient market selection should also result if difficulties of market selection were reduced. Many changes would contribute to this end, for example, elimination of all misrepresentation, an increase in the information provided (both in advertising and on labels), simplification of size of containers and sale by standard weight and measures, provision of information (on posters in stores) on relative food values at prevailing prices. The extensive literature advising consumers on food buying would aid consumers more if selling practices were improved.

Improve the Quality of Food [7]

The food supply can be improved by producing relatively large amounts of protective foods, such as milk, fresh vegetables and fruits, meat and butter, and by making available customary foods with a higher vitamin and mineral content. In achieving the latter several methods may be used, such as the selection of varieties of vegetables high in the certain nutrients, the feeding of cows to get high Vitamin A content in the milk, the combining of protective with non-protective foods (as the use of milk solids in bread), and the addition of synthetic vitamins and minerals to certain foods. Education of producers and consumers alike has an important place in such changes. Subsidy and mandatory rulings may also be important. The step taken in 1941 to enrich bread may be looked upon in future years as the beginning of a new food era.

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[6] See, for example, Chapters 23, 25, and 26.

[7] See Chapter 4 for extended discussion.

Increase Efficiency in Production and Marketing[8]

Better methods of production would enable farmers to make available a larger supply of foods without any increase in price and perhaps even at lower prices. Research and education are needed especially in increasing efficiency in the production of protective foods. Much is being done at the present time to improve both seeds of cereals and other plant foods and breeds of livestock; and the mechanization of agriculture is just beginning.

More efficient methods of marketing would pass back to the farmer a larger share of the consumer's dollar. This would serve to stimulate production and in time would bring benefits to the consumers in the form of larger supplies. Inefficiency in marketing is a favorite topic—local, central, jobbing, and retail markets have all been criticized. Many suggestions have been made to effect an improvement of marketing services that would serve, on the one hand, to lower prices[9] to consumers and thus induce the purchase of larger quantities and, on the other, to raise prices to farmers and thus induce larger production. Suggestions for improvement of marketing will be considered in many of the chapters which follow. Attention will be given, for example, to (*a*) increased grading as a means of reducing cost and improving quality;[10] (*b*) removal of taxes and other regulations that check low-cost methods and maintain retail prices above those necessary to cover cost plus a fair profit;[11] (*c*) the elimination of illegal restraints on competition that create monopoly or cause consumer prices to be higher than are necessary to cover costs and fair profit or force the continuation of marketing services that some consumers would be glad to perform for themselves;[12] (*d*) increased information to consumers so they can make price and quality comparisons and in so doing check somewhat the waste that comes from service competition between stores and the factitious quality, competition, that characterizes much brand selling.

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[8] See Chapter 27.

[9] See Chapter 13.

[10] See Chapter 26.

[11] See Chapter 22.

[12] See Chapters 28, 29, and 30.

To reduce marketing costs research and education are necessary, some existing laws need to be repealed, antitrust legislation needs to be enforced.

Improve Food Sanitation[13]

In spite of great advances in recent years, foods are still a source of poisons and disease-producing bacteria. Although certain communities in the United States have gone further in their efforts to ensure a safe milk supply than many in European and other countries, there are still many communities, notably in but not confined to the South, where the consumption of milk is at a low level because milk is not considered safe to drink. In addition those who have seen cream fermenting and contaminated on its way to the local creamery may be only too happy to accept margarine as a substitute for butter. The problem of poison tolerances on fruits and vegetables is still in a controversial stage. The controversy, which at times is publicized through the press, puts certain foods under suspicion and probably checks their consumption somewhat. It seems important that the standards set and the official inspection of products is such that consumers in general come to feel that their consumption involves no health hazards.

Remove Taxes on Food[14]

Taxes that serve to increase the cost of food, especially those which increase the prices of foods largely consumed by low-income families, are likely to have a deleterious effect on nutrition. It is a well-known fact, for example, that the margarine tax bears most heavily on low-income families and that a sales tax on food is highly regressive, bearing heavily on those least able to pay.

Reduce the Prices of Consumer Goods Other Than Food

In some cases it may be desirable to tackle the problem of malnourishment through the price of non-food products. The various ways in which this might be done are much too numerous to mention.

The relationship to poor diets of expenditures for products other than food in a few cases has been very obvious. For example, a group of families moved from the London slums to new housing estates where the rents were somewhat higher than the dwellings in which the families had lived formerly. With higher rents they were unable to spend as much as before for food. The health of the families in the better housing was distinctly lower than those who remained in the slums with poorer housing and better food.[15]

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[13] For discussion of food sanitation see Chapter 24.

[14] For discussion of taxes see Chapter 22.

Raise Low Incomes[16]

Over and over again attention has been drawn to the large portion of the population which in 1935–36 was spending for food only 5 cents per person per meal and to the meager possibilities of achieving adequate diets without increased family expenditure, which in many cases did not seem feasible in view of the low income and the expenditures for other necessities. There are many families who would be only too glad to eat more fresh fruits and vegetables, butter, eggs and meat, and to drink more milk if incomes were higher or prices lower. A program confined to urging these people to consume a better diet without other changes might do nothing more than foster bitter resentment and promote a greater sense of futility.

Many lines of action are important in achieving better diets, but for some families increased income seems essential. McDougall[17] expresses very well the opinion held by a great many students of family welfare:

> Probably a better knowledge of the principles of nutrition might, in border-line cases, make all the difference between a certain fixed sum of money yielding a diet inadequate for health and one just able to maintain a satisfactory state of health. In the lowest income groups, however, it is impossible to escape the conclusion that no amount of skillful choosing and careful spending will yield a diet conforming to modern nutritional standards, for the protective foods, such as eggs, milk, and fruit, in which these diets are seriously deficient, are, under present conditions, all expensive foods beyond the reach of the less well-off sections of the community.

Many lines of action might have a place in raising low income, some bringing improvement only in the long run, for example:

(*a*) Better vocational training and guidance to increase the productive capacity of workers.

(*b*) Less exploitation of workers by employers, which might be reduced by more effective collective bargaining, better employment bureaus, retraining courses so that shifts to new occupations are facilitated, and minimum wage legislation.

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[15] See G. C. M. M'Gonigle, *Proc. Royal Soc. Med.,* Vol. 26, 1933, p. 677.

[16] For bearing of incomes on food consumption see Chapter 15.

[17] F. L. McDougall, *Food and Welfare,* Geneva Research Centre, Geneva Studies, Vol. IX, No. 5, November, 1938, p. 28.

(*c*) Less exploitation of one labor group by another, in the form of restrictions on the entrance of competent workers into types of work where the rate of earning is relatively high.
(*d*) Family allowances to increase the adequacy of the income of large families.
(*e*) More generous relief budgets in some communities.
(*f*) More adequate W.P.A. wages.
(*g*) More adequate old-age pensions.
(*h*) Long-range planning, by both the state and private enterprise, to minimize depression and to maintain production close to full employment.

The matter of raising low income brings one into a complex of economic relationships which cannot be discussed in this book. Considerable attention will be given, however, to food consumption at different income levels and to the means of increasing the food supply of low-income families.

Subsidize Food Consumption

Food consumption can be subsidized in several ways: The State may pay part of the cost of providing foods so that prices are lower and supplies higher than they would be otherwise. The issue has come up on several occasions; for example, that subsidy should be used to promote fortification of low-grade flours with minerals and vitamins, that it be provided so that stocks of fresh fruits and vegetables not be allowed to rot on trees and vines and in the fields.

Whenever subsidy is given it is important to take steps to see that the subsidy results in lower prices and larger supplies to be sold and does not go merely to increase the incomes of a small group of producers.

The food consumption of limited groups of consumers can be subsidized by the provision of free food at less than cost or of spending power that can be used only for specified foods. Federal programs designed to do one or more of these things exist, for example, the school lunch program, "penny" milk in schools, the food-stamp plan, direct distribution of foods. These schemes have been used largely as a means of increasing the consumption of so-called surplus foods whether or not their consumption contributes to better nutritional health. Furthermore, such subsidy has been limited in scope. Its extension to more families and a shift in policy from a means of moving surpluses to a means of improving health are among the changes recommended by Section II, of the National Nutrition Conference: *Economic Policy and Social Responsibility as Related Nutrition.*

Improve Lunch Systems

Work and school [18] requires that many members of families eat at least one meal away from home. In many cases this is unsatisfactory either because insufficient food is brought from home or because an inadequate lunch is eaten in a nearby restaurant. The development of low-cost, adequate lunches at schools and factories is an important part of a program to better diets. A convenient place to eat, the provision of nourishing, well-prepared food, and time in which to enjoy it may each be as important as low cost in ensuring the consumption of a good diet.

Longer hours of work and the location of many war production plants in places where commercial lunch facilities are very poor have increased the need for improving lunch facilities at factories:

> In a West Coast plant with five thousand workers on the day shift (many of whom come thirty, forty, or more miles to work every morning, reaching the plant at 7 A.M.) most of the men were said to arrive at work without having had breakfast.[19]

In many cases insufficient attention appears to be given to providing nutritious food.[20]

Continue and Extend the Research Program

Research on many fronts is needed. Nutritional research is still far from answering many important questions, for example, how explain the prevalence of structural decay of teeth. Food analysis is just beginning to reveal the difference in nutrients with varieties, regions, seasons, methods of production. Methods of measuring nutritional health are relatively undeveloped. Educational programs go awry because too little is known of existing food habits and because too little is known of peoples' response to various educational methods. All action programs, whether those to increase efficiency in marketing or to improve nutrition through a food-stamp plan, should be accompanied by systematic checking of effects to see whether the end desired is being accomplished or whether modification of policy is desired.

[18] See Chapter 21.

[19] Report of the Committee on Nutrition in Industry of the National Research Council, *The Food and Nutrition of Industrial Workers in Wartime,* Reprint and Circular Series, 110, 1942, p. 3.

[20] *Ibid.*, p. 14.

Organize for Better Nutrition

Many organizations, both federal and state departments and bureaus and independent committees, professional associations, and societies are interested in increasing adequacy of diets. The report of the Mixed Committee [21] of the League of Nations stressed the importance of government leadership:

> For nutritional policy to be effective, the problem must be recognized as one of primary national importance. . . . It lies with Governments, supported by enlightened public opinion, to take the lead. There is no country in which further measures to awaken or stimulate public opinion are not imperatively required. If Governments play their parts in giving a lead to the movement, private agencies may be expected to follow with their distinctive contributions.

Many federal organizations now participate in the nutrition program. They include: [22]

- I. *United States Department of Agriculture.*
  - Bureau of Agricultural Economics.
  - Consumers' Counsel Division.
  - Office of Experiment Stations.
  - Extension Service.
  - Farm Security Administration.
  - Bureau of Home Economics.
  - Agricultural Marketing Service.
  - Rural Electrification Administration.
  - Surplus Marketing Administration.
- II. *Federal Security Agency.*
  - Social Security Board.
  - Civilian Conservation Corps.
  - Office of Education.
  - Food and Drug Administration.
  - United States Public Health Service.
  - Nutrition Division (Office of Defense Health and Welfare Services).
  - National Youth Administration.
- III. *United States Department of Labor.*
  - Children's Bureau.
  - Bureau of Labor Statistics.

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[21] Mixed Committee of the League of Nations, *The Relation of Nutrition to Health, Agriculture and Economic Policy,* 1937, p. 35.

[22] U. S. Office of Civilian Defense, *Volunteers in Nutrition,* 1942, pp. 2–3.

IV. *Federal Works Agency.*
  Work Projects Administration.
  (Home and Community Service.)

V. *United States Department of the Interior.*
  Fish and Wild Life Service.

VI. *Office for Emergency Management.*
  Office of Civilian Defense.
  Office of Price Administration.
  (Consumer Division.)

VII. *Government Affiliated Agencies.*
  American Red Cross.
  National Research Council.
  (Food and Nutrition Board.)
  (Food Habits Committee.)

A major shift in recent years has been the heightened interest in nutrition on the part of doctors and public health agencies. As a result of appropriations under the Social Security Act many state health departments for the first time have employed trained nutritionists.

Defense and war programs have brought increased interest in health and additional nutritional organizations. In 1940 the National Nutrition Advisory Committee was appointed by the Defense Commission. In 1941 the first National Nutrition Conference was held. The Office of Defense Health and Welfare Services, a part of the Office of Emergency Management, is responsible for the nutrition activities of the nation's wartime program. By 1942 it had under way an extensive nutritional program, carried on through state nutrition Committees and many other agencies. The main features of its plan for disseminating information include: [23]

(*a*) Developing a pattern to facilitate and relate the nutrition information activities of all groups interested in the program.
(*b*) Producing certain nutrition information materials—those which, like the symbol and food rules, tell the story in terms of its lowest common denominator.
(*c*) Arranging for distribution of material to all key groups.
(*d*) Serving as a clearing house for State nutrition committees and other agencies.

Cooperation with commercial advertisers will be considered in Chapter 23.

Many programs are being mapped out for state and local committees. The following recommendations concerning them come from a section of the National Nutrition Conference. Community Planning For Nutrition, Section VIII*b,* recommends:

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[23] Office of Defense Health and Welfare Services, *Nutrition News Letter*, 13, 1942, p. 3.

> 1. That the National Nutrition Conference for Defense encourage every rural county and community in the United States to develop a comprehensive and integrated program that will adequately meet the nutrition needs of every man, woman, and child, not only during the emergency, but also on a permanent basis.
>
> 2. That the State Nutrition Committee designate the individuals, groups, or agencies who should assume responsibility for calling together those who should participate in the development of county and community nutrition programs.
>
> 3. That in planning county and community programs, all existing groups and agencies concerned with nutrition participate. Existing planning bodies should be used where possible. In all cases, the county or community planning bodies should include adequate lay representation.
>
> 4. That, as a first step in developing a nutrition program, each county or community become familiar with its local nutritional status and needs. This involves such considerations as the number of families with inadequate incomes, the number of farm families not producing adequate supplies of food for home consumption, and the prevalence of diseases due to malnutrition.

Programs To Improve Nutrition

Programs to better nutrition should have several characteristics. They should recognize that many conditions contribute to poor diets, that some of them will be changed only if continued and persistent effort is put forth, that long-run as well as short-run action programs are important, that improvement of nutrition should be seen in relation to other aspects of living. There should be an honest facing of the complex issues involved; constant revision of policy, formulated from research findings, is desirable. They may reveal the need for new objectives or indicate better ways of attaining old objectives.

II

The Production of Food

3

The Separation of Producer and Consumer

FAMILY food supply, apart from that furnished by farm families for themselves, comes from the market. Through it, in varying stages of preparedness, flow the foods of both nearby and distant farms and factories. For the most part, final preparation and serving take place in the home, although restaurant and cafeteria meals are increasing in importance.

Two major changes in the location of food production have been occurring: (1) Production by families for their own use has declined and that for sale has increased; and (2) local production has declined and regional specialization and mass production have expanded.[1] Some quantitative and qualitative aspects of these shifts will be considered here.

Growth of Commercial Food Production and Processing

Changes in food production can be measured roughly by expansion of factories. If per capita output of products from commercial bakeries, canneries, meat-packing plants, and delicatessens has increased, either people are using more of these foods or a decline has occurred in family production. A marked increase in physical volume of commercial food production is considered indicative of a marked decline in family production.

A study of the growth of manufactures for the period 1899 to 1923 reports physical volume of food and kindred products increasing by 111 per cent during a time when population increased by only 49 per cent. (See Table 1.) A fourfold increase occurred in the volume of canning and preserving. From 1899 to 1923, commercial production of butter, cheese, and condensed milk increased by 260.0 per cent and slaughtering and meat packing by 86.5 per cent.[2]

The manufacture of bread has been steadily shifting to commercial bakers:

> While it was estimated in 1901 only one third of the urban bread consumption was supplied by the baker, in 1918 the baker's share had

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[1] For discussion of regional specialization of fresh fruits and vegetables see E. A. Duddy and D. A. Revzan, *The Physical Distribution of Fresh Fruits and Vegetables,* Univ. Chic. Studies in Bus. Adm., Vol. 7, No. 2, 1937.

[2] This occurred during a period when per capita meat consumption was declining. See Chapter 12.

*Table 1. Index of Production of Manufacturers in Leading Food Industries by Census Years, 1919 = 100 **

	Percentage Increase during 24-Year Period	1923	1921	1919	1914	1909	1904	1899
All food industries	160.7	122.0	79.4	100.0	79.3	74.5	57.2	46.8
Food and kindred products	110.6	111.6	93.5	100.0	80.8	74.8	65.1	53.0
Butter, cheese, and condensed milk	260.0	122.4	104.9	100.0	67.8	52.6	44.0	34.0
Slaughtering and meat packing	86.5	113.0	90.1	100.0	75.7	74.8	67.9	60.6
Flour-mill and grain-mill products	8.3	91.1	86.9	100.0	95.4	91.2	87.5	84.1
Canning and preserving, fruits and vegetables	415.0	126.7	69.6	100.0	77.3	54.5	45.2	24.6
Population	49.3	106.2	103.1	100.0	93.3	86.4	78.7	71.2

* U. S. Bur. Census, Census Mono. VIII, p. 192.

> risen to two thirds, and in 1928 according to a study made of bread purchasing habits in fifteen Pennsylvania towns fully seven eighths was purchased.[3]

Two-thirds of expenditures for all cereals, by a professional family in 1926–27, were for bread, cookies, cake, and crackers: whereas for a similar professional family in 1816–17 only 18.7 per cent of cereal expenditures was for such products.[4]

More and more of the total flour consumed passes through bakeries before reaching consumers.

> In 1889, home-made bread was the rule, not the exception. In that year, the per capita consumption of flour was 224 lbs., of which the bakeries used only an estimated 8 per cent. . . . By 1935, the figures . . . show a per capita consumption of only 155 lbs. of flour. But of this amount 43 per cent . . . was used by the bakeries.[5]

[3] G. A. Stephens, "Baking Industry," *Encyclopedia of the Social Sciences*, Vol. 6, p. 305.

[4] C. G. Woodhouse, "The Standard of Living at the Professional Level, 1816–17 and 1926–27," *J. Pol. Econ.*, Vol. 37, October, 1929, p. 565.

[5] E. G. Montgomery, "Flour Consumption Figures Show Trend to Bakeries," *Food Industries*, Vol. 11, May, 1939, p. 266.

Table 2. Per Capita Output by Factories of Selected Foods

Foods	Percentage Increase	Per Capita Output					
	1933 to 1937	1937	1935	1933	1931	1929	1927
Canned and bottled products							
Beans with pork or sauce including baked beans [a]	8.5	14.20	14.03	13.09	9.45	14.15	15.13
Soups [a]	89.5	16.01	13.52	8.45			
Fruit salad and cocktail [a]	107.9	3.70	2.42	1.78	1.27	1.38	00.93
Fruit juices [a]	157.1 [c]	9.82	3.82				
Meat, lb.[b]	146.5 [e]	2.07	1.58		0.84	1.39	1.26
Meat except sausage, lb.[b]	156.2 [e]	1.86	1.43		0.73	1.23	
Salad dressing, dollars [d]	29.0	0.40	0.36	0.31	0.31	0.356	0.306
Cooked salad dressing, dollars [d]	688.0 [e]	0.197	0.185		0.025	0.030	0.006
Cooked ham, lb.[b]	− 4.8 [f]	1.04	0.85	1.09	1.10	1.25	
Chocolate syrups, pt.	175.0	0.33	0.23	0.12	0.08	0.06	
Cereal and bakery products							
Self-rising prepared flour, lb.	− 9.5 [f]	6.87	6.16	7.24	7.67	8.25	7.45
Cereals, breakfast, lb.							
Ready-to-serve		4.14					
To be cooked before serving		5.50					
Bread and other yeast raised products, lb.	18.9	77.55	72.99	65.22	73.26	81.17	73.61
Biscuits, crackers and cookies (not handmade, lb.)	40.1	11.64	10.38	8.31	9.16	11.10	10.64
Cake, layer, pound, fruit, lb.	30.2 [c]	7.51	5.77				
Cookies, handmade, lb.	− 7.4 [f]	0.75	0.81				
Doughnuts, number	113.3	23.98	19.12	11.24	15.80	19.86	
Pies, dollars [d]	33.3	0.64	0.50	0.48	0.60	0.62	0.52

a Cases per 100 persons.

b Data on hams and canned meat refer only to products of meat-packing plants reporting in the Census.

c Increase from 1935 to 1937.

d Wholesale food-price index 1926 = 100.

e Increase from 1931 to 1937.

f Decrease from 1933 to 1937.

In Table 2 per capita sales during recent years are given for various bakery products.[6] In the face of decreasing flour consumption the per capita output of bread and other yeast-raised products expanded from

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[6] For early expansion see H. Kyrk and J. S. Davis, *The American Baking Industry, 1849–1923,* Food Research Institute, 1925.

65 pounds in 1933 to 78 in 1937: an increase of 19 per cent in 4 years. During the period 1935 to 1937 the per capita output of cake increased 30 per cent. Per capita output of bread in pounds was at a low point in 1933. By 1937 output for all cereal and bakery products except handmade cookies had exceeded any previous level for which data are given in Table 2.

The biennial census of manufacturers especially in the reports of recent years provides other interesting information on commercial food production. In the short period of 1933 to 1937 very striking increases occurred in per capita output of canned soups, fruit salads and cocktails, cooked salad dressing, and canned meat. Evidence of these changes are also found in other studies. In Milwaukee, for example, the percentage of families reporting the use of canned luncheon meats increased from 20 per cent in 1939 to 32 per cent in 1940 and, of canned soups, from 80 per cent in 1931 to 92 per cent in 1940. Average consumption of canned soups by those reporting their use increased from 67 cans yearly during 1926 to 86 cans during 1940.[7] In Cleveland in 1932, 38 per cent and, in 1937, 67 per cent of the families were reported using commercial salad dressing.[8]

Between 1935 and 1937 total production of vegetable purée for infants increased fivefold.[9] Approximately 6 per cent of the Milwaukee families in 1935 and 12 per cent in 1940 reported to be using prepared vegetables and fruits especially treated for child feeding.[10]

The consumption of self-rising flour, however, declined. Apparently, not even such a convenience as this could check the shift to commercial bakery products. Seemingly, "cooked ham" has lost favor, with canned luncheon meats taking its place.

The low point of 1933 in per capita output of many commercially processed foods suggests that the depression caused some families to revive home cooking somewhat. By 1935 a reversion to former habits occurred: Per capita output of most products by factories had moved to higher levels.

The increased importance of meals outside the home can be traced roughly in occupational data. The number of restaurant and lunchroom keepers increased by 88 per cent from 1920 to 1930, whereas the urban population increased by 26 per cent and the total population by only 16 per cent. During the same period the number of waiters increased by 72 per cent. This happened in spite of the cafeteria's becoming relatively more important.

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[7] *The Milwaukee J.*, "Consumer Analysis of the Greater Milwaukee Market," 1931, p. 19, and 1940, pp. 15 and 23.

[8] Scripps-Howard Newspapers, "Market Records," 1938, Vol. II, p. 36.

[9] U. S. Biennial Census of Manufactures.

[10] *Op. cit.*, p. 26.

The shift during the past decade of meal preparation out of the home is indicated by census data of sales of food stores, relative to those in eating and drinking places. They are now available for the ten-year period, 1929 to 1939. Such a contrast is shown in Table 3 for the various regions. In 1929 for every $100 spent in food stores $14.53 was spent in eating and drinking places; by 1939 the amount had increased to $32.07. Middle Atlantic, Pacific, and East North Central regions rank high and the East South Central region very low in dollars spent in eating and drinking places, relative to those spent in food stores. The more rural the region the more likely are these data to overstate the importance of sales in eating and drinking places, since in rural communities a relatively large percentage of the food consumed at home is furnished by the family farm or garden.

Table 3. Sales in Eating and Drinking Places for Every $100 of Sales in Food Stores (including General Stores with Food) 1929, 1933, 1935, 1939

	1929	1933	1935	1939
United States	$14.53	$17.12	$25.26	$32.07
New England	14.59	15.00	22.29	28.29
Middle Atlantic	18.41	20.72	29.87	37.28
East North Central	16.80	19.46	26.54	35.59
West North Central	14.51	19.58	25.19	33.01
South Atlantic	10.06	12.61	17.67	23.10
East South Central	8.55	10.80	14.76	17.16
West South Central	12.90	14.90	18.18	24.08
Mountain	14.08	16.35	25.09	33.30
Pacific	23.83	23.21	30.86	36.14

The importance of food sales in relation to those in eating and drinking places is shown in Table 4 by size of community. In general the larger the city the greater is the importance of sales in eating and drinking places. Again it should be noted that the smaller the town the more these data tend to overstate the importance of sales in eating and drinking places.

In all regions and in all sizes of cities the trend in the relative importance of sales in eating and drinking places from 1935 to 1939 was upward.

Dynamics of Food Production

It is impossible to point out here all influences in the decline of family-food production and in the expansion of production for sale, or the consequences of these changes. The transformation is an integral part of the

Table 4. Sales in Eating and Drinking Places for Every $100 of Retail Sales in Food (and General) Stores by Size of Community, 1935 and 1939 *

Size of Community	Sales	
	1935	*1939*
500,000 or more	$39.42	$48.56
250,000 to 500,000	34.11	38.87
100,000 to 250,000	28.04	33.77
75,000 to 100,000	27.07	30.20
50,000 to 75,000	22.58	29.08
30,000 to 50,000	23.17	27.05
20,000 to 30,000	21.97	29.72
10,000 to 20,000	20.34	25.50
5,000 to 10,000	19.06	24.80
2,500 to 5,000	18.02	23.38
Under 2,500	15.06	23.50
All	25.26	32.07

* General stores are included because of their importance in food sales in the smaller communities. They are of minor importance in places over 2,500 population.

extensive increase in specialization which occurred during the past 150 years. Inventions of many kinds, affecting farm, factory, transportation, and trade techniques, are important. Some significant aspects of the transformation are: (1) transition of production from a local to a "national" basis; (2) increased productivity of techniques used in manufacturing and agriculture, involving increased use of power and precision machinery, specialized workers, and for some processes much large-scale production; (3) increased production for sale with separation of producers and consumers and increase in the importance of marketing.

The development of commercial canning has been a major factor in removing from the family the responsibility of home storage of perishables.[11] Improved refrigeration has been of great importance. Prior to the development of refrigeration, fresh fruits the year round were available in most communities only if grown under glass. Except on the tables of the wealthy, such foods were rare. Now refrigeration plus rapid transportation make possible intensive regional specialization and shipment of perishable fruits and vegetables thousands of miles.

The introduction of power machinery on the farm and in the factory constitutes a major technical change promoting specialization. Various attempts have been made to measure the increased productivity accompanying changes in production techniques. One estimate places the increase in productivity per worker in manufacturing at 65 per cent.[12] The productivity per man hour in flour-milling and meat-packing industries is estimated to have increased from 1914 to 1925 by approximately 39 and 27 per cent, respectively.[13]

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[11] See, for example, J. H. Collins, *The Story of Canned Foods*, 1924.

Output per worker in agriculture has also increased. This increased productivity is reported for all agricultural regions. For the United States as a whole in 1936, its level was estimated to be 24 per cent above that of 1909.[14]

Inventions have also provided improved tools and machines for family use. No measure is available, however, to indicate the increase in productivity which has occurred where scale of operation is small. Some people believe that families as a whole have failed to appreciate the productive power of new machines and techniques adapted to family use.[15]

The transformation from an agricultural to an urban economy has been a major factor in changing food production. In 1790, 3 per cent of the population were living in cities of 8,000 or more; in 1930, 49 per cent of the people were in cities of this size. The population shift from farm to city from 1860 to 1930 was especially rapid. From 1920 to 1930 farm population fell from 29.9 to 24.8 per cent. By 1935 the proportion was slightly higher—25.0 per cent.[16] Except for the year 1932, however, more people moved from than to farms. This shift from farm to villages and cities has occurred much more rapidly in some parts of the country than in others. In 1935, in the Middle Atlantic region, for example, only 7 per cent of the people were on farms, whereas in the East South Central region 50 per cent of the population were on farms.

The many changes that take place in food production when families shift from farm to urban living are well known. Separated from the land, they are not in a position to produce their own food supply. Basic food materials, such as milk, eggs, poultry, meat, vegetables, fruits, and other things formerly furnished, must now be purchased. Furthermore, tasks connected with the storage and processing of many products tend, as a matter of course, to pass to paid workers, for example, canning of fruits, vegetables, curing of meat, butter-making. In addition, however, farm as well as urban families have shifted in large measure from producing or making to buying their food supplies.[17]

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[12] U. S. Bur. Census, *Biennial Census of Manufactures,* 1935. The difficulty in summarizing production data in index form is discussed by E. E. Day and W. Thomas, *The Growth of Manufacturers, 1899 to 1923,* U. S. Bur. Census, Census Mono. VIII, 1928, especially pp. 9–31, 44–50, 192–3.

> The figures for physical production, . . . are incomplete, unsystematic, and, because they run in terms of heterogeneous units, are not additive. They have to be studied and manipulated with the utmost care if they are to be made to tell their story. [p. 10.]

See also S. Fabricant, *The Output of Manufacturing Industries 1899 to 1937,* Nat. Bur. Econ. Res., 1940.

[13] President's conference on unemployment, *Recent Economic Changes,* 1929, pp. 157 and 159.

[14] E. E. Shaw and J. A. Hopkins, *Trends in Employment in Agriculture,* W.P.A. Nat. Res. Proj., Report A-8, 1938.

[15] See, for example, publications of the School of Living, Suffern, N. Y.

[16] U. S. Census Agr., 1935, Vol. III, General Report.

Significance of Changes in Food Production

The place, techniques, and organization of food production have changed greatly in the past 100 years in the United States. This fact is obvious to all. But what about it? Their bearing on cost and quality of food are important to consumers, as well as their effect on problems of consumers' choice and market selection and of social control.

The transition from a local to a national economy has eliminated danger of famines resulting from local disasters of drought and flood and has greatly increased the length of season during which many fresh fruits and vegetables are available. Products, such as flour, which may be blended can be kept more uniform from year to year since quality is no longer determined in local supply. It has reduced the likelihood of dietary deficiencies resulting from local soil conditions, such as a high incidence of goiter where iodine content of the soil is low. It has increased the variety of foods available at any one time or place, and at the same time has made food consumption habits more uniform than formerly throughout the country.

Increased use of power and precision machinery and of specialized workers has had a bearing on quality. A product of uniform and higher quality, at least according to many standards set, often can be secured, higher quality than is likely to be obtained in homemade products. The quality of butter, for example, as a whole probably has become higher and more uniform as manufacturing has shifted from home and farm to factory.[18] A study of bread-making among Vermont farm families reported much homemade bread to be of inferior quality, although the investigators felt that quality of homemade bread readily could be improved.[19]

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[17] For discussion of farm-family production see Chapters 6, 7, and 8.

[18] For every 100 pounds of butter made in factories the following pounds were reported produced on farms: 1899, 255 pounds; 1919, 76.9 pounds; 1929, 43.7 pounds; 1935, 33.7 pounds. The average pounds of butter churned by those reporting churning fell from 178 pounds in 1929 to 146 pounds in 1934. (See U. S. Census Agr.)

A study of homecanned vegetables indicated that homecanned products are often inferior.

> Commercial brands on the whole scored higher than home canned goods in respect to flavor and tenderness and maturity. Low flavor scores in home canned products were due in the main to the use of over-ripe or under-ripe vegetables.[20]

Another change of special importance to sellers of raw materials has occurred. Machines and skilled workers have made it possible to use different types of raw materials in producing an "acceptable product."

> The development of baking by machine methods, especially the use of high speed mixers, enabled bakers to produce an attractive acceptable bread from flour that would not be acceptable in a hand bakery. This has lessened the importance of higher quality flour made from spring wheat.[21]

Housewives, in baking, continue to use fresh milk even though canned and powdered milk provide the nutrients at much lower cost. The latter are typical ingredients used by commercial bakeries. To a large extent they also use frozen, dried, and canned eggs rather than fresh. The U. S. Bureau of Agricultural Economics[22] reports "a phenomenal growth" in the use of liquid eggs for commercial purposes:

> With the change during the past two decades from home cooked foods to prepared food, commercial manufacturers of bakery goods, salad dressings, candies and other confectioneries all have become large users of liquid and frozen eggs, and, in recent years, also of dried eggs.

Greater distance between producer and consumer and larger scale of production have increased the importance of both storage and shipping. Foods which store and handle well have a decided advantage over those which do not. For many years much discussion has centered on the desirability of retaining in flour those minerals and vitamins present in the wheat kernel. A milling process which became increasingly important during the latter half of the 19th century removed many valuable minerals and vitamins.[23] Because of its color, consumers favored the flour resulting from the new process. The flour industry favored it because of its improved keeping quality. These two influences together helped to bring a deterioration in nutritive quality of flour consumed. Recently developed milling processes, however, are retaining in some flour many of the nutrients formerly lost. Some flour is also being enriched to compensate for important ingredients which have been removed.[24] In the meantime a few people have returned to the home grinding of wheat as the best way to secure satisfactory flour.

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[19] M. Muse and M. Liston, *The Relative Economy of Household Production and of Purchase of White Bread,* Vt. Agr. Exp. Sta. Bul. 392, 1935.

[20] E. G. Holmes, *The Relative Economy of Household Production and Purchase of Four Canned Vegetables,* Vt. Agr. Exp. Sta. Bul. 449, 1939, p. 2.

[21] V. G. Pickett and R. S. Vaile, *The Decline of Northwestern Flour Milling,* Univ. Minn. Studies in Econ. and Bus., No. 5, 1933.

[22] *Marketing Activities,* Vol. 3, August, 1940, p. 5.

Because of the increased distance that products must be shipped, those varieties which do not readily bruise are favored. This fact is important in determining commercial varieties of apples and peaches, for example; the kind of lettuce eaten is influenced by the fact that it comes from California rather than from the family's or the neighbor's garden. Refrigerator cars and improved packaging methods, to be sure, have increased the types of products which will stand long shipping. Even so, fruits and vegetables are often picked green and must be stored some time before reaching consumers. Some loss in vitamin content and flavor results.

Many changes during recent years have increased freshness of foods, for example, fruits, vegetables, and meats. Rapid transportation and refrigeration have brought fresh fruit and vegetables to markets the year round. Cured and canned meat in the summer and withered, shrunken, or dried vegetables in the winter are much less common. At the same time cold-storage lockers are making it possible for many farm families to use products from their own gardens and thus enjoy a much higher degree of freshness than was possible formerly during certain seasons.

Large-scale production in the performance of certain processes has resulted in a disregard of individual likes and dislikes and in a catering to mass preference.

The separation of producers and consumers affects their knowledge of each other. For the most part, consumers communicate their preferences to producers through a complex market system. The system frequently is a very clumsy and ineffective means of notifying producers about which products are most acceptable, what would be preferred, and the relative strength of preferences. In order to bridge the gap more effectively, many producers, especially in recent years, have found it desirable to study consumer preference by systematically watching their behavior in retail stores or by making house-to-house visits.

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[23] For discussion of development of flour milling see C. B. Kuhlman, *The Development of the Flour-Milling Industry in the United States*, 1929; and O. Skovholt, "Confusion about Fortification," *Food Industries*, Vol. 13, March, 1941, pp. 56–7.

[24] For further discussion see Chapter 4.

Mass production of agricultural products often has led to intensive cultivation. This condition in some instances has increased the difficulty of controlling pests and parasites and in turn has led to greater use of insecticides. Regulation of poison-spray residues has become important. Inasmuch, however, as disease in animals and poison sprays on vegetables and fruits are inevitable and constitute a hazard to consumers, mass handling facilitates the inspection and use of controls needed to reduce dangers.

The increase in productivity per worker in agriculture, manufacturing, and processing has been achieved in large measure by regional specialization and larger-scale production. Both have increased the importance of marketing functions. According to this estimate, between 1870 and 1930 the number of workers in distribution increased approximately three times as fast as the number in production.[25]

Costs of distribution in some measure offset the economy of large-scale production and regional specialization. The large portion of the consumer dollar's going to "distribution" has led to criticisms of waste and inefficiency in marketing and to searching for more efficient methods and organization. It will be necessary later to discuss these matters in some detail.

Large-scale organization has brought with it concentration of power and some restraints on trade that present perplexing problems of social control with respect to some food industries, for example, milk distribution, meat packing, bakeries.

As more and more of the family's food supply comes from the market, selling methods take on added significance. Impelled by the profit motive, sellers in general are concerned only with promoting welfare in so far as consumers recognize what is good and are able and willing to pay for it. Doubtless, sales methods sometimes have helped to increase the consumption of foods contributing to a more adequate diet. Even a brief appraisal of selling methods, however, will reveal that they are often characterized by incomplete and confusing information, that deceptions of many sorts are resorted to in order to cover up an inferior product. Undesirable selling methods can be checked through state or business regulation of practices and to a lesser extent by education of consumers. The Federal Food, Drug, and Cosmetic Act is probably the most important piece of legislation affecting sale of food. This and other controls will be considered later.

Present Food Supply

The present food supply is characterized by abundance and increased variety and by a marked decline of family and community self-sufficiency.

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[25] See Twentieth Century Fund, *Does Distribution Cost Too Much?* 1939, p. 379.

Marked changes will probably continue. It seems likely that further inventions will increase the use of mechanical power in agriculture and bring more intensive specialization. Many problems pertaining to production and sale exist and are a challenge to develop social organization to match our machines and physical power. There is, for example, the control of large-scale industry, the regulation of sales methods, the development of a legal framework within which the new technique and methods can be used most effectively.

4

Improving the Quality of Food

THE quality of the total food supply can be improved in two major ways: first, by increasing the volume of so-called protective foods, such as milk, eggs, fresh vegetables, and fruits and butter; and, second, by providing customary foods of a type that contain larger amounts of vitamins and minerals. If the latter method is followed, many families may be better fed without making what seems to them any change in their food habits.

An Adequate Supply of Protective Foods

Estimates based on dietary needs have shown that a good diet for the entire population, assuming consumption is according to the food preferences that seem to exist in this country, would require a great increase in the production of many foods, especially of protective foods, such as fresh fruits and vegetables, milk, butter, and meat. Stiebeling,[1] for example, estimates that if present diets were raised to the level of "good," nutritionally speaking, the following increase in foods would be needed:

Food	*Percentage Increase*
Milk	20
Butter	15
Tomatoes and citrous fruits	70
Leafy, green, and yellow vegetables	100
Eggs	35

Of the acreage needed for such a program Cavin[2] writes:

> The total acreage required to raise the supplies of agricultural products sufficiently to enable the Nation to secure the moderate-cost good diet would be slightly higher than the total acreage required to maintain recent levels of per capita consumption. . . . Close to a million additional acres might be needed for vegetables, including tomatoes. The greatest effect on agriculture would come from the

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[1] H. K. Stiebeling, "Better Nutrition as a National Goal: The Problem," *1939 Yearbook of Agriculture,* p. 380.

[2] "Better Nutrition as a National Goal: Agricultural Programs," *op. cit.,* p. 400.

desired increases in the consumption of milk and butter; probably 7 to 8 million acres would be needed to support the increased numbers of dairy cows.

How To Increase the Volume of Protective Foods

Many types of change would tend to increase the supply of protective foods. The production plans of farmers and processors are affected by consumers' willingness to pay for various foods. This in turn is affected by income, relative cost of foods, and relative preference. Improvement in income will increase the consumer demand for protective foods,[3] so also will education that convinces consumers of their great importance. Lowering prices of protective foods in contrast with that of other foods will promote their consumption.

Farmers will expand their production of any food (1) if the price anticipated is relatively high; (2) if relative costs anticipated are relatively low; and (3) if any restrictions that interfered with the use of their resources in its production are removed. Restriction, for example, might include regulations in A.A.A. marketing agreements, some restrictions imposed by other parts of the A.A.A. program, and local sanitary regulations imposed to check supply rather than to make products safe to consume. Lower marketing costs and knowledge of more efficient methods of production would also stimulate increased production.

Farmers might also be encouraged through subsidy to expand the production of those foods especially important to improved nutrition. It would seem that too little effort has yet been directed to discovering ways of encouraging desired production rather than paying farmers to let their acres lie idle.

Some increase in the supply would occur if all those protective foods grown or raised were used by consumers. Low-calcium consumption is a major nutritional defect; yet a very large part of the milk solids is not used for human food.

Secretary of Agriculture, Claude R. Wickard,[4] points out:

> Not all the milk nutrients that are produced are actually offered for sale. Much of the skim milk, which is a by-product of cream- and butter-making, and of whey, which is a by-product of cheese-making, is wasted or fed to animals. Humans could make good use of these highly nutritive by-products, but very little is offered to them at any price.

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[3] See Chapter 15.

[4] *Consumers' Guide,* Mar. 15, 1941, p. 14.

Vial[5] reports that for 1937 "only about 17 percent of the total production (of skim milk and buttermilk) was utilized in the making of manufactured products." Some of these manufactured products are consumed by people, some by animals, and some go to non-food uses. "About 20,000–30,000 tons of casein, requiring over 1,000,000 pounds of skimmed milk (1 percent of the total milk production) are now used for glue, cold-water paints, paper coatings, molded articles (chiefly buttons)."[6]

Another estimate is as follows:

> The skim milk being produced on farms and not now being used for human food is very large . . . enough to provide about two-thirds of a pint per day for each of the hundred million city dwellers. . . .[7]

There seems little doubt that

> From the long-time point of view the diversion of more skim milk from animal feed to human food is an important step that needs to be taken to improve low-income diets.[8]

Very little attention has been given in most cities to selling fresh skim milk. The belief exists in some quarters that by confining consumers to whole milk and cream they are willing to pay a higher total amount, that sales of skim milk would be made only at a relatively low price and would cut into sales of fluid milk.

The failure to sell skim milk is also in part the result of consumers' attitude. Some consumers mistakenly believe that the food value of dairy products lies largely in the fat. They have failed to appreciate fully the nutritional value of the milk solids alone. So far, educational programs have made little attempt to overcome this prejudice.

The ruling that exists in some states prohibiting the sale of filled milk—that is, skim milk to which fat other than butter has been added—has undoubtedly served to check somewhat the sale of skim milk. With proper labeling, there seems to be no sound reason why filled milk, made from skim milk and a wholesome fat should not be made available.

An increase in human consumption of skim-milk products would reduce those available for animal feeding. New animal-feeding methods would have to be developed. It seems highly probable that less expensive materials could be used to replace the milk solids if a reasonable effort were made to expand the consumer market for them.

[5] U. S. Dept. Agr. Tech. Bul. 722, 1940, p. 14.

[6] *1940 Yearbook of Agriculture,* p. 51.

[7] *Marketing Activities,* February, 1942. See also C. C. Van Leer, "Milk Drying under War Conditions," *Chem. Eng.,* Feb. 25, 1942, pp. 276–8.

[8] *Ibid.*

A desirable rule to follow would be: No food potentially useful in improving the quality of human nutrition should be deliberately used for animal feeding in order to sustain the price of other foods. Persistent effort should be made to reduce consumers' ignorance, which results in some milk products, for example, skim milk, being under-estimated as a source of important nutrients.

Milk products are not the only ones that are deliberately held off the market in order to sustain price. It has been practiced in some markets with fruits, vegetables, eggs, poultry, and other products. It seems desirable to sort out the culls and any low-grade products that will not be fit for human consumption by the time they reach the retail store. But to destroy or allow to rot or to turn those products sold into inferior use in order to sustain the price constitutes a social waste.

One estimate of the waste of fifteen commercial truck crops is as follows:

> The volume that never reached the market in 1940 would have supplied the 13 million persons in the Greater New York Area with these products for 32 days. Enough was unmarketed in 1939 to supply the area for 36 days. And in 1938, the quantity not marketed would have supplied this great consuming center for 90 days.[9]

One other method of increasing the supply of protective foods should be mentioned. The possibilities of protective foods, heretofore relatively unimportant, should be explored. Many events, including the A.A.A. program, have in recent years combined to bring about a marked expansion in the production of soy beans, the "magic crop" of Chinese agriculture, one of the most nutritious of the pulses known, high in protein and calcium and in Vitamins A, B, and D.[10] Extensive investigation is now being conducted as to edible varieties and modes of preparation that will make them accepted in the American diet. The possibilities of peanut flour are also being studied.

Ways of Improving Individual Foods

Improvement in the quality of a food might be effected in one of several ways:

1. Shift production to the varieties richest in vitamins and minerals; for example, produce only those varieties of carrots and apples high in Vitamin C or those hogs which store most thiamin. Pearl, in his study, *The Natural History of Population,* sees the loss of essential chemicals in the soil as a major hazard of future populations.

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[9] *Marketing Activities,* April, 1941, p. 7.

[10] The production of soy beans increased tenfold from 1929 to 1939.

2. Use fertilizers to enrich the soil so that fruits, vegetables, and cereals contain greater amounts of minerals that are important to nutritional health; and improve the quality of animal feeds so that animal products are of high quality, for example, milk and butter rich in Vitamin A.
3. Harvest, process, store, and cook foods in such a way as to minimize the destruction of nutrients; for example, preserve Vitamin C in cooking fruits and vegetables and Vitamin B in cooking of meat. In some cases it may be necessary to choose between high vitamins and desirable flavor and color. Taylor[11] points out:

> In the canning of fruits and of fruit juices, it is sought to save vitamin C. This requires particular methods of excluding oxidation, also of retaining flavors and colors, as the case may be; it involves expense. It might easily be true of a particular product that it were better to lose the vitamin C in the processing, and add it at the end, than to sacrifice colors and flavors at increasing costs. What needs clearly to be realized is that the point of occurrence of high vitamin content need not be identical with the point of occurrence of ripening, with which processor or consumer are familiar.

Many food industries are planning to investigate more fully methods of processing that will conserve nutrients.

> Discovery of new and better ways of processing and preserving foods so as to retain their nutritive values, and free distribution of information so obtained, are the objects of the Nutrition Foundation, a non-profit organization recently organized with Dr. Karl T. Compton, president of Massachusetts Institute of Technology, as chairman of the board of trustees.[12]

It is possible to enrich foods in many other ways:

1. Retain in a food those nutrients previously discarded in the processing. In enriching flour there are several options; that is, revive old-fashioned graham flour, develop a "new-fashioned graham flour, with lighter color, less bitterness and roughage and better-keeping qualities," or develop a "high extraction flour, like the 85 percent flours of Great Britain and Continental Europe."[13] Taylor points out that "as little as 15 percent and as much as 70 percent of the thiamin of wheat can be retained in wheaten flour, according as the extraction rises from, let us say, 70 to 85 percent. . . .[14]

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[11] A. E. Taylor, "Why Enrichment of Flour?" *Wheat Studies of the Food Research Institute,* Vol. 18, November, 1941, pp. 88–9.

[12] *Food Field Reporter,* Jan. 5, 1942, p. 21. For information on home-cookery methods see *J. H. Ec.,* September, 1942, p. 476.

[13] *Op. cit.,* p. 106.

[14] *Ibid.,* p. 76.

2. Add synthetic vitamins or minerals to the food.

3. In processing, combine with non-protective foods those foods which are rich in vitamins and minerals, for example, the use of special yeasts and dried milk in bread. Wilder[15] goes so far as to point out the advantage of adding dried milk to sugar.

> Were each average daily per capita portion of sugar (5½ ounces) to be combined with only a little more than an ounce of skim milk solids, we should improve the American diet to the extent of including in it the equivalent of a pint of skim milk. For most cooking purposes the presence of 22 percent of skim milk solids in sugar would be advantageous rather than otherwise. I can foresee, however, objections from soda pop fanciers and those who like their liquors clear. The answer for them might be to use whey solids. Whey will go into a fairly clear solution. Whey represents the milk less casein. The lactalbumin, which contains all the biologically necessary amino-acids, remains, as does most of the content of water soluble minerals and vitamins. Whey is produced in enormous quantities as a by-product in the manufacture of cheese, and although some of it finds a market in poultry feed, it mostly today is not used for any purpose.

More milk might be introduced into many foods. Since candy is a non-protective food, the question arises as to the means of combining more and more protective foods with it. Milk is, of course, now used in the manufacture of many types of candy. Why not use more? Its effect on the characteristics of the candy, apparent to consumers, may be a very important fact—as it would be also if it were added to soft drinks. A candy bar, composed of evaporated milk and honey center, chocolate coated, has been developed by the Department of Dairy Industry at Iowa State College. Such a bar would undoubtedly get a higher nutritional rating than the usual run of candy bars. Unless people can be informed of its nutritive value and thus rate this fact highly in selecting a sweet, such a product to be acceptable to consumers must be sized so that those comparing it with other bars will feel that they are getting a good deal for their money; it must satisfy the craving for sweets; and it must have a pleasing texture in the mouth.

Several things appear to stand in the way of producers' being interested in the bar as a commercial venture. The flavor and texture of the bar, especially the texture, are somewhat different from those of any other bar on the market. The demand for candy bars is stimulated by extensive advertising, and many brands have a high consumer preference. Would it be possible to get a company to introduce this bar in competition with brands already established? A bar with milk and honey has a higher raw-material cost than ordinary candy made largely from sugar. Since 5 cents is a customary price, a relatively narrow margin remains to cover marketing costs. Would it be possible to get a large retailing chain to undertake to manufacture and sell such a bar in order to get the goodwill of the dairy industry, perennially concerned over finding new outlets for milk? Could it be introduced with subsidy through the school-lunch programs or through army rations? In such ways a liking for it might be developed and the possibility of commercial sales later made more likely. A wide range of factors obviously plays a part in the successful introduction of this food. Endorsement of the bar by nutritionists is probable, but it must be sold to consumers who make their choice on the basis of knowledge (which is far from complete) and of habits relatively fixed, with health considered only as one of the ends to be served by food.

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[15] R. M. Wilder, "Nutrition in the United States: A Program for the Present Emergency and for the Future," *Ann. Internal Med.*, June, 1941.

"Natural" Foods versus Synthetic Compounds

When one considers the addition to foods of synthetic vitamin and mineral compounds, several questions arise. In the first place, are nonprotective foods plus the addition of synthetic vitamin and mineral compounds as satisfactory nutritionally as the increased consumption of foods in which the nutrients have been combined by nature? The science of nutrition has many unanswered questions. Probability is high that many compounds essential to optimum health have not yet been isolated. Enrichment with synthetic compounds is therefore looked upon merely as a substitute, the superior method being to get nutrients, known to be essential, in that combination of nutrients provided by vegetable and animal growth. Until the time when satisfactory natural foods are available and accepted by consumers, some fortification of food established in the diet is deemed, however, highly desirable by nutritionists.

Roberts,[16] for example, holds that fortification should be looked upon as "first aid" only, reliance being mainly put on a varied diet with generous amount of natural foods.

Sebrell [17] maintains that dietary deficiency will be solved not by the use of fortified foods but by education and making available a wide variety of natural, unrefined foods at low prices.

[16] L. J. Roberts, "Fortification in a General Program for Better Nutrition," *Milbank Memorial Fund Quarterly,* Vol. 17, July, 1939, pp. 230–40.

[17] W. H. Sebrell, "The Public Health Aspects of the Fortification of Foods with Vitamins and Minerals," *Milbank Memorial Fund Quarterly,* Vol. 17, 1939, pp. 241–7.

Instead of improving the quality of foods either by retaining original nutrients or by adding concentrates of vitamins or minerals to "natural foods," it is possible to have people take the needed vitamins in concentrated form, for example, pills and capsules. In some instances this is undoubtedly the most advantageous way of dealing with dietary deficiencies, but nutritional and medical supervision usually is considered highly desirable. Under war conditions, various concentrates are being used extensively in some European countries.

The Addition of Synthetic Compounds

The addition of synthetic minerals and vitamins may be considered advisable for several reasons. It may bring less change in the texture and appearance of foods than the combination of protective and non-protective foods and hence be more readily accepted by consumers. It may be possible to improve foods in this way at very low cost. In addition, improvement in foods may be effected more rapidly in that the supply of the necessary nutrients can be expanded more readily in the synthetic than in the natural foods.

The addition of synthetic vitamins and minerals raises several questions:

1. To what foods shall they be added? Those from which they were lost during processing or storing? Those which never had them?
2. Shall they be added for foods in all or only some parts of the country? The addition of iodine to drinking water and to salt is much more desirable in some parts of the country than in others. It is much more important to add niacin to foods consumed in Southern communities with a high incidence of pellagra than to foods consumed in many other regions. Vitamin D milk for consumption in Northern cities during the winter might be desirable, whereas the great amount of sunlight in Southern cities may make such enrichment unnecessary.
3. How much vitamin and mineral content will be added? Enough to restore that which was lost? Or shall one food be used as a carrier to supplement deficiencies in other foods consumed?
4. Should the enrichment be optimal or mandatory? Subsidized or unsubsidized?
5. What foods shall be enriched and by what amounts?

Some people feel that it is necessary only to ensure that total diets contain essential nutrients. In such a program, however, it is important to consider prevailing food habits and dietary deficiencies. Since the diets of low-income families are most likely to be deficient, it is especially important to enrich foods important in their diets, the enrichment of cereals and fats other than butter, for example.

It has been considered especially important to restore nutrients where modern methods of processing have impoverished a food. Prevailing habits of bread consumption were established at a time when bread was a source of important nutrients not now found in unenriched white bread. It is important also to enrich foods that consumers look upon as a substitute for foods having a high protective value, for example, margarine, which many low-income families accept as a substitute for butter.

The Council of Foods of the American Medical Association[18] is interested in the enrichment of foods. It states:

> The Council of Foods recognizes that the fortification of foods, if rightly done may make it easier for persons to select an adequate diet than is otherwise the case. As a result of its study of available evidence, the Council adopted the following statement as an expression of its present policy:
>
> "The Council on Foods desires to encourage the restorative addition of vitamins or mineral or other dietary essentials, in such amounts as will raise the content of vitamin or other dietary essentials of general purpose foods to recognized high natural levels; with the provision that such additions are to be limited to vitamins and minerals or other dietary essentials for which a wider distribution is considered by the Council to be in the interest of the public health. The Council is opposed to indiscriminate fortification of general purpose foods with vitamins, or minerals or other dietary essentials."

Oatmeal is, for example, high in Vitamin B_1. "It was decided that the addition to breakfast cereal of Vitamin B_1 . . . up to the level of oatmeal would be in agreement with the council's declared policy."[19]

The Committee on Foods and Nutrition of the National Research Council[20] in a "Resolution Relating to Addition of Specific Nutrients to Foods," states:

> That the Committee endorses the addition of specific nutrients to staple foods (as indicated . . . below) which are effective vehicles for correcting . . . deficiencies in the diets of the general population or of significant age, geographical, economic or racial segments thereof. . . .
>
> That the Committee favors unequivocally the fulfillment of the nutritional needs of the people by the use of natural foods as far as practicable and to that end encourages education in the proper choice

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[18] *Accepted Foods,* p. 6.

[19] *J. Am. Med. Ass.,* July 20, 1940, p. 218.

[20] Resolution of meeting held Oct. 1, 1941.

> of foods and the betterment of processes of food manufacture and preparation so as to retain more fully the essential nutrients native thereto;
>
> That to avoid undue artificiality of food supply the Committee favors, whenever practicable the choice as vehicle for the corrective distribution of vitamins and minerals those foods which have suffered losses in refining processes and recommends that the vitamins and minerals added to such foods should preferably be the kinds and quantities native thereto in the unrefined state;
>
> That the addition of other than natural levels of vitamins and minerals to foods which are suitable as vehicles of distribution may be sanctioned when more natural routes are practically unavailable as measures to correct known nutritional deficiencies;
>
> That at present the Committee favors appropriate enrichment of flour and bread (and perhaps corn meal), the fortification of milk with vitamin D, the suitable addition of vitamin A to table fats and of iodine to salt for dietary use. There is no information available to the Committee at the present time which indicates that it is desirable to recommend the addition of vitamins or minerals to foods other than those named;
>
> That specifically the Committee opposes the addition of synthetic vitamins to carbonated beverages and confectionery.

The Food and Drug Administration of the Federal Security Agency has the power to promulgate standards of identity of enriched foods. It has already set enrichment standard for margarine, with Vitamins A and D and for bread and flour. These standards are official and permissive.

The following standards were promulgated by the Food and Drug Administration for "enriched flour." [21]

Ingredients	*Requirement in Milligrams * per Pound of Flour*	
	Minimum	*Maximum*
Must Be Included †		
Vitamin B (thiamin)	1.66	2.5
Riboflavin	1.20	1.8
Nicotinic acid (to be described as niacin)	6.00	9.0
Iron	6.00	24.0
Optional		
Vitamin D (U.S.P. units)	250	1,000
Calcium	500	2,000
Wheat germ or partly defatted wheat germ		5% by weight

* Except where otherwise stated.

† "Must" in this case refers to the ingredients to be added if the product is described as enriched.

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[21] *Federal Register*, Apr. 1, 1941, p. 1734.

The decision to make calcium an optional enrichment ingredient was taken, in spite of the fact that bread has never been an important source of calcium, in the hope that people who do not consume sufficient quantities of dairy products will get these important nutrients in this way.

In view of the shortages of synthetic riboflavin and niacin, permission has been given to describe, as enriched, bread that did not contain the specified ingredients. Even if no emergency existed it would take a considerable period of time to provide the necessary ingredients for such enrichment.

Issues arise concerning the relative cost of different methods of providing certain nutrients. The relative economy of various methods of enriching food or of securing vitamin and mineral compounds apart from food is likely to shift greatly from time to time. Methods of manufacturing are likely to improve and thus greatly reduce the cost of mineral and vitamin compounds. At one time Consumers' Union [22] reported:

> It is unfortunate that the cost of fortified . . . milk puts it beyond the reach of millions of infants and children who need it. . . . There seems to be no valid reason why milk producers could not turn out cheap vitamin D milk for consumers. At present cod-liver oil, viosterol and fish-liver oil concentrates are cheaper sources of vitamin D.

Relative costs are, of course, subject to change. The price of riboflavin, for example, has fallen sharply. Glabau, in *Bakers' Weekly,* July 27, 1942, reports that riboflavin fell from $17.50 per gram in April, 1928, to $0.75 per gram in July, 1942. In view of the change in supply as well as in price, he feels that riboflavin may soon become a requirement of enriched bread and flour.

Voluntary versus Mandatory Improvement of Foods

Voluntary improvement of foods, whether by different varieties of plants or breeds of animals, by the use of different fertilizers, feed, or processing, or by the different combination of materials, calls for further research. In effecting improvement, education of producers is necessary. Consumer education is also important. If the improved products are more costly, their introduction will depend not only on consumers' being informed that they are better but also on their being impressed with the fact that they are worth the higher price. It may be necessary to modify consumers' preferences. It so happens, for example, that Jonathan apples, one of the popular varieties, are rather low in Vitamin C. Its general importance probably is due in large part to its color and to the ease with which it is stored. Extensive consumer education might be necessary in order to introduce apples less red in color even though they have a much higher Vitamin C content.

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[22] *Consumers' Union Reports,* February, 1940, p. 21.

Voluntary improvement of foods can be promoted, of course, by the use of subsidy. It is of interest that the 1941 food plans of the British government included the introduction of wholemeal bread made from an 85 per cent extraction of wheat. At first the consumption of such bread was not made compulsory, but the Food Ministry provided a subsidy "confined to bakers who are prepared to sell the wholemeal bread." [23] Thus through subsidy to processors the government attempted to increase the supply of a more nutritious bread. In addition, the Food Ministry released a barrage of advertising, telling of its virtues. In the summer of 1941, the wholemeal loaf accounted for 7½ per cent of the country's bread sales. By the winter of 1942 it had reached 30 per cent. In April, 1942, the use of wholemeal bread was made mandatory.[24] This extreme step was taken in an effort to save shipping space.

In the United States the enrichment of bread and flour was undertaken in 1941, on a voluntary basis.[25] Taylor,[26] in discussing the introduction of enriched flour on this voluntary basis, states:

> While it seems highly probable, for the time being, that high-grade and high-priced flours can carry such expensive enrichments, according to commercial experience it does not seem warranted to expect low-priced flour, sold to bakers and households, to carry such "out-of-pocket" contributions by the millers. Certainly, in the case of low-priced, and especially self-raising flours, which go most to consumers especially in need of vitamins, it seems at the moment impossible to envisage widespread application other than through public subsidy.

He gives some estimates of the cost of enrichment: [27]

> At present, the minimum out-of-pocket cost per barrel of flour—of adding to each pound of flour 1.65 milligrams of thiamin, 6.5 milligrams of nicotinic acid (niacin), and 6.5 milligrams of iron—is around 29 cents per barrel (196 pounds.) If riboflavin, when it becomes available, were to cost $1.25 a gram, as at present, this would bring the cost of enrichment toward 50 cents per barrel of flour. . . .

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[23] *New York Times,* Feb. 9, 1941.

[24] See *Business Week,* Mar. 21, 1942, p. 14.

[25] For extended discussion of the nutritive quality of bread see H. C. Sherman and C. S. Pearson, *Modern Bread from the Viewpoint of Nutrition,* 1942.

[26] *Op. cit.,* p. 99.

[27] *Ibid.*

Williams[28] reports also: "All the bread and flour in the country could be enriched for about 20 cents per person per year."

During 1941 the enrichment of flour and bread was greeted with a burst of enthusiasm by many bakers and millers, long worried by the criticisms that refined-flour consumption had received from nutritionists. Early in 1942, however, there were reports in the press of a declining interest and a general failure to enrich the low-grade flours. At the same time an interest in compulsory enrichment was growing. South Carolina was the first state to enact legislation calling for enrichment. The law there calls for mandatory enrichment, to be effective August, 1942. It seems highly probable that millers of high-grade flour would favor such legislation. Millers of "high"-grade flour are able to get higher prices because of qualities, real or factitious, for which consumers are willing to pay. There is as yet no evidence that consumers are willing to pay anything extra for enrichment. Even though the cost of enrichment is small, it may be an important part of a miller's profit. With mandatory enrichment, the additional costs, incurred because of the enrichment, could be passed on to the consumers and former price differentials, based on consumer preference, would still occur.

[28] R. R. Williams, *Enriched Flour and Bread,* pamphlet, 1942.

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Imputing Value to Family-Furnished Foods[1]

THE recent depression has served to focus attention more fully than formerly on family-furnished foods, special attention being given to families assisted by the Farm Security Administration and to those on part-time farms. From many quarters questions are being asked concerning how much food do, might, or should farm and also village families provide for themselves. Home-grown and consumed foods do not pass through the market. Value thus must be imputed if their extent or the desirability of their production is to be determined. Imputing value needs to be considered from the standpoint of management of resources. It is necessary also in securing a measure of real income and of total food consumed.

This chapter prepares the way for the discussion in Chapters 6, 7, and 8. First we shall consider methods of imputing used in studies, their influence on values derived, and the relation of method to purpose of investigation.

General Methods Used in Imputing Value

Two general methods have been utilized in imputing a value to family-furnished products; namely, prices which would have been (*a*) received had products been sold; or (*b*) paid had they been purchased.[2] A combination or modification of these two methods has also been used at times.[3] An extensive study by Kirkpatrick[4] provides an important example of a compromise between sale and purchase price: The imputed value was based on "prices halfway between what they [the foods] would have brought had they been sold and what they would have cost had they been purchased on the local market, in so far as these prices could be determined."

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[1] This chapter might well be omitted by those uninterested in research in family living.

[2] Early studies imputing value on the basis of purchase price include the following: (1) J. D. Black and C. C. Zimmerman, *Family Living on Successful Minnesota Farms*, Minn. Agr. Exp. Sta. Bul. 240, 1927; (2) W. A. Anderson, *Farm Family Living among White Owners and Tenant Operators in Wake County, 1926*, N. C. Agr. Exp. Sta. Bul. 269, 1929; (3) E. E. Hoyt, *Value of Family Living on Iowa Farms*, Ia. Agr. Exp. Sta. Bul. 281, 1931; (4) M. Muse, *The Standard of Living of Specific Owner-Operated Vermont Farms*, Vt. Agr. Exp. Sta. Bul. 340, 1932.

[3] Attempts have also been made to impute value from "Cost of Production": In one study "Garden produce was charged in a lump sum, the value being based on cost of production. This cost is made up of man and horse labor spent on the garden, seed, taxes, interest, and any other direct garden charge. This charge is probaby only one-half the city market price of garden produce." This method was resorted to because there was "no definite local established price and

Other combinations have been used. For example, one study valued butter at retail; other products except fruits and vegetables were valued at average farm prices for a 2-year period. Fruits produced at home were omitted from the calculation, and the value assigned to vegetables was based on square feet of garden space.[5]

Differences in Value with Method Used

Imputed value of a given quantity and quality of produce depends on prices used. Hawthorne[6] in an early study of family-furnished foods writes: "Were it necessary to buy all the family living furnished by the farm at city retail prices the cost would be fully twice the evaluation . . . at farm prices." Williams and Lockwood[7] estimated the value of family-furnished food first on the basis of the local retail price and second on the basis of wholesale prices that the family would have obtained had the foods been sold in the neighboring market. For 41 farm families the imputed retail value was 58 per cent higher than the wholesale; and for 18 village families it was 73 per cent. (See Table 5.)

A recent study in South Dakota reports that the retail value of products used exceeded farm value by approximately 22 per cent, with differences in 6 counties ranging from 16 to 26 per cent.[8] Twenty families

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no method of accurately determining the amount produced." F. W. Peck, *The Cost of Living on Minnesota Farms—1905–1914,* Minn. Agr. Exp. Sta. Bul. 162, 1916, p. 12.

[4] *The Farmer's Standard of Living,* U. S. Dept. Agr. Bul. 1466, 1926, p. 12. The same author in his book, *The Farmer's Standard of Living,* 1929, p. 53, reports: "For the most part the valuations for food and fuel approximate the prices which would have been received for the products had they been sold. Exceptions to this would include products of a non-marketable grade or other products for which no market was available. These non-marketable products were charged at prices ranging somewhere between what they would have brought if sold and what they would have cost if purchased on the local market, usually more nearly what they would have brought if sold."

[5] C. C. Zimmerman and J. D. Black, *Factors Affecting Expenditures of Farm Family Incomes in Minnesota,* Minn. Agr. Exp. Sta. Bul. 246, 1928, p. 25.

[6] H. W. Hawthorne, *The Family Living from the Farm,* U. S. Dept. Agr. Bul. 1338, 1925, p. 2.

[7] *An Economic Study of Food Consumed by Farm and Village Families in Central New York,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 502, 1930, pp. 12–3.

[8] W. F. Kumlien *et al., The Standard of Living of Farm and Village Families in Six South Dakota Counties, 1935,* S. D. Agr. Exp. Sta. Bul. 320, 1938, p. 50.

Table 5. Value of farm-furnished food, of "adequately fed" families, classified by money expenditures per adult unit per day for food, 1925 to 1927 *

Money Expenditure (Cents)	Number of Families	Average Expenditure (Cents)	Average Wholesale Value of Food Produced (Cents)	Average Retail Value of Food Produced (Cents)	Percentage by Which Retail Exceeds Wholesale Value
41 farm families					
10.0–19.9	8	15.5	23.2	37.0	59
20.0–29.9	19	24.0	21.9	34.6	58
30.0–39.9	12	35.7	17.9	28.0	58
40.0–59.9	2	47.4	11.5	16.4	43
All	41	26.9	20.4	32.2	58
18 village families					
30.0–39.9	3	36.8	12.4	21.6	74
40.0–49.9	5	45.3	11.0	18.2	65
50.0–59.9	4	54.9	13.5	21.9	62
60.0–69.9	3	63.8	3.5	5.7	63
70.0–89.9	3	79.7	1.8	4.9	172
All	18	54.8	8.2	14.2	73

* F. M. Williams and J. E. Lockwood, *An Economic Study of Food Consumed by Farm and Village Families in Central New York*, Cornell (N. Y.) Agr. Exp. Sta. Bul. 502, 1930, p. 20. In this study an inventory was taken at the beginning and end of the selected period and a careful record was kept of all food coming into the house and of all waste. See discussion, pp. 12–4, of method of valuation.

on a federal reclamation project in 1935 are reported to have used family-furnished food which if purchased would have cost $539 and if sold would have brought $375—the value based on purchase price, exceeding by 44 per cent that based on sale price.[9]

A study of agricultural income by the National Industrial Conference Board [10] compared, for the years 1929 to 1933, the two methods by imputing value to products produced and consumed by farm families. For the entire period the estimated value at retail prices exceeded by 160 per cent the value based on farm sale prices.

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[9] C. P. Loomis and O. E. Leonard, *Standards of Living in an Indian Mexican Village and on a Reclamation Project*, U. S. Dept. Agr., F.S.A. and B.A.E. cooperating, Social Research Report XIV, 1938, p. 44.

[10] R. F. Martin, *Income in Agriculture, 1929–1935*, Nat. Ind. Conf. Bd. Studies 232, 1936, pp. 86–7. In this case it seems likely that no opportunity would be lost to make farm income appear high.

These studies raise two important questions: (1) How to account for marked differences found by various investigators in the spread between values based on purchase and on sale prices? and (2) what are the relative merits of the two methods?

Why the Differences?

Causes of difference in valuations must be sought in prices selected and in the behavior of these prices. The spread between sale and purchase price varies with phases of the business cycle. When prices decline as they did during the period 1929 to 1932, the farm price of many products becomes increasingly low, relative to retail price. Rising prices bring a reverse situation. Thus the divergence in valuations based on purchase and sale prices may vary from time to time.

The difference depends in part on the kind of products being evaluated, the margin between farm and retail price, being much greater for some products than others.[11] A New York study reports: "The retail prices for garden produce were 59 per cent higher than farm prices. Livestock products were 31 per cent and meat approximately 25 per cent higher." [12] Lively [13] reports, by type of product, the difference between value based on farm and on retail prices in Columbus, Ohio. The extent to which retail price exceeded farm price ranged from 21 per cent for butter to 123 per cent for cream. For the entire group of products studied, retail exceeded farm valuation by 64 per cent. Moser made a similar comparison for a group of 23 South Carolina families. The local retail price of milk exceeded farm price by 143 per cent, while for tomatoes the excess was only 13 per cent. For all products used by these families, retail exceeded farm valuation by 71 per cent. (See Table 6.) If the families being studied happen to produce for themselves relatively large quantities of foods having a wide margin between farm and retail prices, the difference in imputed values, according to the prices used, will be relatively large.

Imputed value is influenced by the amount of processing and service included in the food being priced. When sale price is used, the value contributed by family processing is often excluded. This may occur even though some of the home-processed product is sold. The U. S. Bureau of

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[11] For discussion of marketing margins on various foods see Twentieth Century Fund, *Does Distribution Cost Too Much?* 1939.

[12] K. Hood, *An Economic Study of Part-Time Farming in the Elmira and Albany Areas of New York, 1932 and 1933,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, 1936, p. 103. Retail prices were obtained from a survey of retail grocery stores and butcher shops in the areas studied. Retail prices paid by those interviewed for articles bought were also used.

[13] C. E. Lively, *Family Living Expenditures on Ohio Farms,* Ohio Agr. Exp. Sta. Bul. 468, 1930, p. 22.

Table 6. Money Value of Family-Furnished Foods, Priced at Farm and at Retail Prices, as of April, 1935 *

Products	Money Value of Home-Produced Food		Percentage by Which Retail Exceeds Farm Valuation
	Farm price	Retail price	
Grain	$ 7.12	$ 9.49	33.29
Milk	53.69	130.28	142.65
Potatoes	1.62	2.55	57.41
Dried peas, beans and nuts	1.21	1.64	35.54
Leafy, green, and yellow vegetables	14.26	20.46	43.48
Tomatoes	1.12	1.26	12.50
Dried fruits	1.16	1.63	40.52
Other vegetables	4.46	6.19	38.79
Other fruits	8.60	12.25	42.44
Fats (including fat meal)	15.02	19.22	27.96
Syrup, preserves, honey, etc.	5.09	5.86	15.13
Lean meats, poultry, fish and eggs	39.97	51.79	29.57
Total	153.32	262.62	71.29

* A. M. Moser, *Farm Family Diets in the South Carolina, Piedmont,* S. C. Cir. 53, 1935, p. 19. Food quantities priced were those consumed by 23 households having adequate diets.

Agricultural Economics, for example, in imputing a value to home-furnished pork and lard, evaluates that consumed at home by the sale price of live animals. If, however, some pork is sold locally, "the value of the proportion of the animals slaughtered on the farms that is sold as meat is raised 30 per cent, as a rough estimate of the extent to which the value of these products sold in the local market exceeded the value of the equivalent live weight of the hogs on the farm." [14] A family, for example, may can fruits and vegetables from the home garden. There is probably no ready market for the sale of homecanned food. Hence any evaluation on the basis of sale price is likely to be confined to the raw products, no allowance being made for value added in canning. If one is using purchase price, there is a tendency in imputing value to use the price of foods in the form commonly purchased; these foods frequently are processed products.

The market situation in a community may have an important bearing on the spread between sale and purchase price. For example, a study made in Kentucky reports that local retail prices were often identical with farm prices. "Garden produce, for example, raised by most families for home consumption and by some for sale as well, was not sold in retail stores. It was found that sales of such produce were made to families buying at the same price as to commercial sellers."[15]

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[14] *Income Parity for Agriculture,* Part I—*Farm Income,* Section 3—*Income from Hogs,* 1938, p. 2.

Finally the divergence between farm and retail price will be influenced by the particular prices selected in imputing value. Here one is confronted with determining "the" purchase or sale price of a given food.

Selection of Prices

Prices, both sale and purchase, of a single type of food in a community will vary with quality, season of the year, services included either to the seller or to the purchaser, and size of unit sale or purchase. Unless the investigator has these factors in mind in selecting the price to be used, he may overlook some that influence valuation to a greater or lesser extent.

Data on seasonal consumption or time of putting products into storage, on quality used, and on buying practices may be secured for each family and related to appropriate prices. Averages may be determined by systematic questioning of families or may be based on the investigator's impressions, derived somewhat incidentally while securing data on quantity consumed. Where practices of many families are averaged, the data may have little value for depicting the situations of single families, although they may be typical of a group.

A price of a particular quality must be selected. For sale prices there is at any one time in the central market a price for a given grade. Local prices are related to this. If the local market center does not regularly publish prices of produce, the wholesale prices of eggs, butter, meat, etc., in a nearby city may be used and deductions made for costs of getting products to that center. For example, in one study:[16]

> Wholesale egg prices were calculated on the basis of a medium grade of eggs in New York City minus the cost of the express, the crates, and the labor involved in preparing the eggs for shipment.
>
> In general they [New York farmers] sell their food animals alive. Some farmers do a little slaughtering, either for their own

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[15] Faith Williams *et al., Family Living in Knott County, Kentucky,* U. S. Dept. Agr. Tech. Bul. 576, 1937, pp. 3–4.

It seems probable that a condition in which sale price in the local market and the purchase price in small quantities to neighbors are the same occurs in large measure because the sales of small quantity are looked upon as incidental to general market sales or to family use. The nuisance of the small sale may be written off to neighborliness. The continuation of such a condition may depend on there being relatively little of it.

[16] F. M. Williams and J. E. Lockwood, *op. cit.,* p. 13.

> families, or for neighbors. Wholesale meat prices used in this study are therefore based on the prices paid for live animals to New York producers as reported by the United States Department of Agriculture, increased by a small percentage to represent the difference between the value of cattle and the value of meat.

In studies that use sale price, those products having no local price are at times omitted altogether; for example, in grain farming regions, garden products have often been omitted.[17] If families used the "unmarketable" surplus of the commercial crop sold in the community or those which sold at only a very low price, such as small potatoes, overripe and undersized fruit, often no value is imputed.

Purchase price of a specified quality, in contrast with sale price, is far from standardized. It varies greatly with size of purchase and from store to store, being influenced by services offered and other factors. An investigator, in selecting a retail price to use in imputing value to a particular product, must make decisions about quality of product and season and also about size of purchase made, type of store patronized, retailing services to be paid for, and town in which prices are to be secured. Prices used may be those in a local community or in the nearest large city.[18] At times price data are collected especially for the valuation of products in a particular study; at other times prices reported by the U. S. Bureau of Labor Statistics are used.

In the recent Consumer Purchases Study, the imputed value of family-furnished food was based on prices customarily paid for products of similar quality that were purchased from neighbors or at the most likely place of purchase. Prices paid by those families who purchased the foods were averaged, each community being treated as a unit. Prices for most products probably were somewhat lower than those paid for similar products in retail stores in nearby towns and cities. Prices in this case reflect the purchasing practices of farm families. The practices of those who buy are used, however, as the basis of imputing value to the family-furnished products of other families.

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[17] See, for example, E. A. Willson, *Incomes and Cost of Living of Farm Families in North Dakota, 1923–1931*, N. D. Agr. Exp. Sta. Bul. 271, 1933, p. 19. "The value of farm-furnished foods was considerably higher in 1923 and 1924 than in succeeding years. . . . This difference is due to the fact that garden and orchard products for which there was no market were included in the 1923 and 1924 records at estimated values. For the years 1925 to 1931 farm-furnished food which had no sale value was not included because of the difficulty in securing accurate records of the quantities used and of determining satisfactory values."

[18] For use of prices in the nearest large city see, for example, C. E. Lively, *op. cit.*; I. H. Gross and J. Pond, *Changes in Standards of Consumption During a Depression*, Mich. Agr. Exp. Sta. Special Bul. 274, 1936, p. 4; J. D. Black and

Another point should be noted. To evaluate a given quantity of product on the basis of the purchase price at the time of use may give a very different result from imputing value according to purchase price at the time of harvest and of putting the product into storage. Several factors are different: size of unit purchase, seasonal price, and performance of the storage function by families rather than by market agencies. Furthermore, imputing value by purchase price at time of use overlooks the fact that a family, securing potatoes from its root cellar in April or even earlier, is likely to be consuming potatoes of quite different quality from those being sold at that time in nearby stores.

Why Impute Value to Family-Furnished Foods?

Various methods of imputing value bring different results and serve to answer different questions. Two purposes only will be considered here: (1) to indicate relative economy in the use of family resources; (2) to throw light on total food consumption and on real income, scale of living, or relative well-being of groups of families. The latter point is important in a study of food since income level is one of the major factors affecting food consumption.

Some people appear to be interested in knowing what money income farm families might have obtained had they used all their resources for production for sale rather than if they had used some of them for production for family use. As a consequence in imputing value to family-furnished food, they tend to select sale price. Strictly speaking, money income foregone must be considered in terms of products that would have been raised had sale only been contemplated. In many cases an estimate of such income would involve a very complex calculation and, as a consequence, is seldom made. The calculations of potential money income appears, however, to serve no useful purpose other than satisfying a curiosity which might well be directed into other channels. Potential money income does not measure potential real income. Furthermore, the practical issue confronting families in their use of resources cannot be faced by examining potential money income but must be seen in terms of alternative use of resources which may contribute to family living.[19]

C. C. Zimmerman, *Family Living on Successful Minnesota Farms,* Minn. Agr. Exp. Sta. Bul. 240, 1927.

[19] An extended discussion of methods of imputing value to "use-income" from the farm is to be found in *Research in Agricultural Income,* Bul. 6, 1933, and *Research in Farm Family Living,* Bul. 11, 1933, both published by the Social Science Research Council, edited by John D. Black.

Family-Furnished Food: A Management Problem

What basis of imputing value to family-furnished foods will assist in discovering whether an increase in real income will occur by expanding or contracting their production? Resources, both those used for providing money income and those used in family production, serve the same general end. Thus an answer to this question involves the total family economy. The basis of imputing value to the products used, if it is not to be wholly arbitrary, must consider the underlying decisions made in directing the use of resources.[20]

The rationale of a family directing the use of its resources is identical with that of a manager of a business enterprise producing wholly for sale, although in production for family use custom, habit, ignorance, and inertia are likely to be relatively more important. They interfere with informed judgment. Because of this basic similarity it will be helpful to state briefly certain economics principles. In achieving economy in the use of resources the output of any one product is expanded to a point where anticipated marginal or additional cost equals anticipated marginal or additional returns. Family-furnished food would thus be expanded to a point where the additional satisfaction anticipated from the final unit secured is equal to the satisfaction anticipated from the additional income which might have been secured had the product been sold rather than used by the family, or which might have been secured had resources been put to some other use.

If overhead or fixed costs exist, the returns from any one product must be sufficient to cover only the direct costs involved, but the total returns from all the production must cover the cost of all resources used. Costs are measured in terms of opportunities foregone. At any moment those alternatives then open are the only ones considered. Thus, in the short run, fixed costs do not enter into the calculation; they enter only into long-run plans. If these costs are not being covered, and it does not seem likely that they will be covered if previous conditions continue to prevail, resources will be shifted to other uses.

Family-furnished foods may be classified under two general categories. (1) There are foods whose total annual supply consumed comes from the farm. They in turn may be of several different types. There are foods where family use is incidental to production for sale. Or the family may consume all that is raised. Or sale may be incidental—the surplus over and above that used by the family being sold during all or part of the year. (2) There are foods of which only a part of the annual supply consumed by the family comes from the farm, the rest being purchased. Among them may be foods for which during part of the year a surplus over and above family use is sold, as well as some foods of which the family consumes all that is raised. But in each case, shortages at certain seasons are met by purchasing.

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[20] It is not assumed that maximum returns can be measured in terms of money alone. Decisions which direct the allocation of resources must be thought of in terms of the ends and the values which the family has in mind at the time decisions are made. (See Chapter 9.)

Foods available for purchase may also be considered under several categories: for example (1) those identical to foods which might readily be furnished by the family; (2) those made from basic foods produced locally but commonly purchased by families who buy in a more advanced stage of processing (for example, pork and butter) than are the foods which are commonly sold by farm families (for example, hogs and cream); (3) those foods not commonly raised by farm families for their own use, for which certain home-raised products are considered quite acceptable substitutes, such as tomatoes for citrous fruits; and (4) those foods without acceptable substitutes, which are quite outside the scope of family production, such as sugar and spices.

The question of economy in providing family-furnished foods is most likely to arise in connection with foods raised solely or primarily for family use and with foods requiring processing beyond the point at which the product usually is sold, for example, butter and beef. Home processing is likely to be questioned if tools and equipment for home use appear very crude in contrast with commercial equipment. The question then is whether or not to sell the raw materials and later to buy back the processed product. There may be a question at times of whether to replace home-furnished products by low-priced substitutes; for example, oleomargarine in place of butter, salt pork in place of chicken.

Prices Important in Appraising Economy

The prices to which a farm family adjusts its output of family-furnished food includes both the sale prices of things that are or might be sold and purchase prices of things that they do or might buy. Once a product is available, its sale price at the farm, less any additional costs incurred if it is to be marketed rather than used, is a measure of the minimum money income foregone when a family uses rather than sells it. On the other hand the purchase price in local retail stores or at neighboring farms, plus the cost of getting it to the farm home, constitutes the maximum cost to be incurred in securing the product through purchase. A family is likely to consider it uneconomical to use food that might be sold if the anticipated returns from money income foregone is greater than those to be secured from the consumption of the food. On the other hand, a family in producing food for its use is justified in incurring costs equal to local purchase price plus costs of getting it. In the analysis which follows, the minimum and maximum values which families keep in mind in deciding whether to buy or to produce will be described as the farm-sale price and the farm-purchase price.

In using farm-purchase price in these cases it should be borne in mind that the purchase price in the community, since it usually does not include the cost of getting products to the farm, may greatly understate the value of some family-furnished foods, for example, fluid milk, fresh fruits and vegetables, for which stocks must continually be renewed. If local-sale price is the price paid for products delivered in the village, it may overstate, for example, the value of the product to the family. No great error would arise, however, from using village-sale price, unless containers and wrappings involve expense and considerable time is necessary for selling, since the additional cost of selling the amount which the family consumed along with products from the farms is generally unimportant.

With commercial crops, farm-sale price[21] seems to be a very satisfactory measure for valuing that part used by the family. Total output of the product tends to be expanded to a point where marginal cost equals selling price.[22] The family tends to expand its consumption of the food to a point where the utility of the income foregone, which is equal to the farm-sale price, equals the marginal utility of the product. The consumption by a farm family of its commercial crop may reach high per capita levels in contrast with the consumption of the same product by urban families.[23] This is a normal response to the relatively low cost incurred.[24]

In studying the economy of resources, it does not seem important to concern oneself with culls having no sale value. It is economical for the family to use them so long as they are rated above the returns which would be secured by using them as fertilizer or feed for farm animals.

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[21] It has been pointed out above that this price may be identical with the price paid by farm families who may buy at neighboring farms.

[22] Marginal cost for farmers tends to be the same on all farms having access to one market because farmers as sellers are not in a position to influence price. Considerable confusion on this point appears in certain discussion because of the failure to recognize that economic analysis usually assumes that marginal and not average cost tends to be taken into account in regulating output. See, for example, *Research in Farm Family Living, op. cit.*, pp. 151, 166–7, and 171.

[23] C. E. Lively, *Family Living Expenditures on Ohio Farms*, Ohio Agr. Exp. Sta. Bul. 468, 1930, p. 21. Lively states: "It is believed . . . that when imputing a value for farm products consumed on the farm, the farm price is the more accurate one since it comes nearer to giving the value of the products in the environment in which they were consumed." Lively fails to draw a distinction between products which are primarily for sale and those which are produced mainly for family consumption.

[24] At times one may find families who consume little of their own commercial crops. The sight and handling of large quantities of one type of food may reduce consumer preference so that even a low price is insufficient to induce high consumption.

Should a food material be processed at home, the value to the family of the product as finally consumed would be greater than the farm-sale price of the raw product. Additional costs may be incurred in processing. The maximum marginal cost that a family is justified in incurring is the farm-purchase price of an identical product. If a family is selling a raw material and buying back any of the finished product, the value of that part of the product which is home processed and stored should probably be rated at the farm-purchase price. The continued purchase of a part of or all the supply of any food must be accepted as evidence that the family, perhaps mistakenly, considers that the additional costs of family processing are more than the difference between farm-sale price of the raw food and farm-purchase price of the processed food. This, of course, assumes that a family tends to select the least costly method of getting a product.

A family may have a surplus to sell during only a part of the year; for example, a surplus of eggs, some fruits, and other products at the height of season. At other times all the product is consumed by the family. While a product is being sold, the value attached to it will be farm-sale price foregone. At other times a family member may reply to an inquiring buyer: "I am sorry we have no more than enough for the family." To forego a sale is to indicate that a value higher than the farm-sale price is attached to the product. It may be economical to incur average annual costs at a point above the farm-sale price received for that portion sold, in order to insure an "adequate" quantity at those periods when the product is being used exclusively by the family. The valuation determining output in general may therefore be more closely related to farm-purchase price of an acceptable substitute than to farm-sale price of that portion sold.

If some of the product is being purchased and some comes from the farm, the economical use of resources should bring an expansion of output to a point where marginal cost equates farm-purchase price of the product or its substitute.

If the product being consumed is neither bought nor sold, marginal cost and marginal utility tend to be equated, but the point of equating is related only to the subjective evaluation of individual families. Families will tend to expand the production of foods sold to a point where the marginal cost is equal to farm-sale price, and the production for use of foods of a type which are partly purchased to the point where the marginal cost is equal to the farm-purchase price. But for those foods which are neither purchased nor sold no such objective measure is available. Farm-purchase price thus at times may overstate the value attached to the product. On the other hand, farm-sale price in most instances undoubtedly understates it.

In supporting the practice of valuing farm products at purchase prices, Williams states that the use of sale price is especially misleading where gardens, chickens, hogs, etc., are the exception and not the rule. She writes:

> In such communities one of the most fruitful methods of raising the level of family living may be increasing farm production of goods for home consumption, and it will be important to have figures showing what the goods furnished certain families in the community by their farms would have cost had they been purchased. It would also be important to have figures on the value of the goods had they been sold to commercial buyers, and on the cost of their production in terms of the alternative-use-value of the land, labor and capital used in their production. In studies of consumption, such figures should, however, be used as supplements to figures on the price-if-purchased, not as substitutes for them.[25]

Appraising the Scale of Living

Money Expenditures an Inadequate Measure of Real Income or Food-Consumption Level

Money expenditures are often a very inadequate measure of real income or scale of food consumption. Among the important reasons are the following:

1. Prices to be paid may differ between two groups of families being compared. In this case the potential contribution of a given money income or expenditure is indicated only if some correction is made for price differences. This correction may be important in intercommunity comparisons and in making comparisons over a period of time, especially if important changes in price level have occurred. The U. S. Bureau of Labor Statistics cost-of-living index has been devised in order that money expenditures, in spite of changing prices, reflect the level of living of families of urban wage-earning and low-salaried workers. This index is made up of separate indices from food, clothing, and other items of the budget. An index for farm-family living has been prepared by the U. S. Department of Agriculture. Studies have also been made of certain intercity differences in cost of living. Findings from such studies in various regions make it possible to adjust expenditures to indicate more clearly than otherwise the comparative level of living in various urban communities.[26] For the purpose of

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[25] *Research in Farm Family Living, op. cit.*, p. 169.

[26] See, for example, M. L. Stecker, *Intercity Differences in Costs of Living in March, 1935, 59 Cities*, W.P.A. Research Mono. 12, 1937.

comparing relative well-being of farm families it may be necessary to acquire further knowledge of intercommunity cost of living. Cost-of-living indices are always more or less arbitrary. Their use in adjusting expenditures to indicate relative well-being at different times and in various communities are to that extent open to criticism.

2. A major objection to using money valuation of real income as a basis for comparing level of living from time to time and from place to place arises if the type of goods used by families has changed or for any reason differs greatly. In fact there are some who question whether a money measure should ever be used when there is a wide difference in the standard of living of various groups being compared.[27] Certain farm-urban comparisons and comparisons over considerable periods of time are challenged as a consequence. In such cases one group of families uses many types of goods which the other group does or did not have.

3. Money expenditures, in and by themselves, fail to measure relative scale of living if important differences exist among families in their use of family-owned durable goods, such as owner-occupied homes,[28] or of family-furnished products. If the volume of family-furnished products is the same

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[27] R. F. Martin, *Income in Agriculture 1929–1935,* Nat. Ind. Conf. Bd. Studies, 1936, pp. 8–9, states: "Rural living is economically so different from the urban and suburban living of most of those engaged in other occupations that, even were the statistical data adequate and accurate, direct and unqualified comparisons of income in the two groups would be of little significance. It is impossible to evaluate all of the elements entering into the comparative standards of living on farms and in urban areas. . . . The best that can be done in comparing the two modes of living is to segregate the major items for which some rough measurement is possible and bear in mind constantly that they represent only a part of the comparative situation."

[28] For a discussion of the imputation of value to measure the use income of durable goods see *Research in Farm Family Living, op. cit.,* p. 21. Imputation of value for housing is especially important in comparing the level of living of farm and urban families, and of comparing urban families in owner-occupied and in rented houses. Imputing value to the use income of owner-occupied dwellings in a city is a much less arbitrary procedure than imputing a value to farm dwellings. With the urban dweller imputed value of the dwelling can usually be based on the rent which some other family would be willing to pay—a real alternative. This method cannot be used in imputing value to use income of a farm dwelling, since it is usually only available as a part of the farm.

In getting a money measure of real income, the imputed value of family contribution and value of dwelling is commonly added to expenditures. "Value of farm living," as thus expressed, is a composite of money expenditure and imputed value. It is frequently compared with a measure of "value of urban family living" consisting of money expenditures, plus an imputed value of housing for those families living in owner-occupied dwellings.

Because of difficulties involved, free community services are usually omitted from a measure of real income. Where these are paid for out of local taxes, their inclusion in total expenditures of a community will give an indication of total real income from this source. The incidence of taxes on families is not related to the use which is made of the services provided for them.

for all families being compared or if they constitute the same proportion of their total real income, this source of goods can be ignored in measuring relative well-being of families, provided that it is made clear that attention is confined to the portion of goods provided from money expenditure. The extent of family-furnished food constitutes an important difference between farm and urban families; and, during the recent depression when money income of farm families fell sharply, production for family use increased. Long-time changes in production for family use have also been occurring.

Because of the great difficulty in placing a value on the contribution of family members, in what are commonly classed as household tasks, usually no attempt is made to measure the contribution which they make to real income. If they are entirely overlooked an assumption, implicit or explicit, is made; namely, that this type of production is much the same for all families. This assumption may lead to a considerable understatement of the real income of farm in contrast with urban families, especially in those urban income groups where it is common practice for wives to be gainfully employed. Furthermore, it may lead to an overrating or an underrating of shifts through time. Any increase in leisure of women or shift of labor to gainful work may decrease the contribution to real income through household labor.[29] Some evidence points to an increase in the time given to household tasks among farm families during the period 1930 to 1933.[30]

Many measures of scale of living or well-being may be used.[31] No one measure excludes the use of any other. Defective as money measures are, there seems to be no reason for discarding them entirely. An abundant life in terms of customary American standards of living is largely made up of goods purchased. Hence dollars will throw important light on potential, if not actual, well-being. Any measure used should, however, be made as accurate as is feasible and should be supplemented by other measures.

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[29] This is an oversimplified statement of changes. There seems, however, to be sufficient evidence to show that the contribution to real income through household tasks has declined for all families and that the present level among urban families is lower than that among farm families.

[30] The writer is not prepared to suggest a simple means of imputing a value to the contribution made to real income from household tasks other than taking into account some of the processing performed by farm families which is not common to city families. Even though they cannot be measured in money terms, their probable influence should be taken into account in interpreting any money measures evolved.

[31] In addition to using money measures, welfare might be indicated by selected items in the scale of living, for example, the kind of food eaten, the clothes worn, the houses lived in, the educational and recreational facilities enjoyed. For food and to a much lesser extent for housing and clothing, scientific standards as they relate to health exist. Scales have been devised to rate the other things, for example, furnishings of living room. Rating scales involving numerous details are complicated and confusing and have met with considerable criticism, but their continued outcropping is evidence of the desire for a general measure. See, for example, F. S. Chapin, *The Measurement of Social Status*, bulletin publication of Univ. Minn. Press, 1933; and W. H. Sewell, *The Construction and Standardization of a Scale for the Measurement of the Socio-Economic Status of Oklahoma Farm Families*, Okla. Agr. Exp. Sta. Tech. Bul. 9, 1940. This study has an extensive bibliography.

Merits of Various Prices

Three types of prices have been used in imputing value to family-furnished food in order to secure a money measure of real income: (*a*) sale price; (*b*) local-purchase price, either local retail or price at most likely place of purchase; (*c*) the purchase price of the farm-furnished products in the market of the group of families with whom comparison is being made.[32]

We have already discussed the prices that families take into account in weighing the economy of providing food for themselves. The use of the same prices, that is, a combination of farm-sale and farm-purchase prices, has some merit in indicating real income in that it introduces the least distortion in the relative importance of family-furnished foods in contrast with items purchased. However, the use of two sets of prices complicates the procedure.

Black[33] objects to the use of sale price on the grounds that:

> The composite dollars so obtained represent much more goods and services per dollar than do the dollars made up of money income only. This is because the part of the composite dollars that comes from home-produced food and the like represents much more goods and services per dollar than does the other part of the income.

This conclusion raises several questions. If families elect to use their resources in one way rather than another, who is to say that the dollars going in one direction represent more than those going in another. Black's criticism of the use of sale price has significance only if the sale price understates income foregone. This probably does not occur if and when the family is selling the product in question. It will, however, understate income foregone if family-furnished foods are being provided primarily or solely for use, and no market exists in which they could be sold. In this connection it is perhaps well to point out that a unit of a product does not have a fixed utility. The concepts of diminishing and marginal utility have an important place in determining the "value" of products used in a given situation.

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[32] F. M. Williams, *Studies of Family Living in the United States and other Countries,* U. S. Dept. Agr. Misc. Pub. 223, 1935, p. 62, lists an additional method, namely, cost of production computed in terms of the alternative use-value of the land, land and capital which went into their production. It has been pointed out above that if the product used by the family is also sold, the marginal cost of production tends to equal farm-sale price. Where part of the product is purchased and part is home produced, the marginal cost tends to be equated with the farm-purchase price. The only place where an estimate of cost of production would have significance apart from such sale and purchase prices is for those products which are neither bought nor sold.

[33] *Research in Farm Family Living, op. cit.,* p. 13.

The use of sale prices for imputing value to family-furnished products, in time-to-time comparisons, may be complicated by the difference in the behavior of farm and purchase prices. On this point Black [34] writes:

> . . . an appreciable change either in proportions of goods and services obtained directly from the farm, or in relative purchasing power of farm products, or in both combined, will make comparisons between the years, based on valuation of farm produced goods at the farm, significantly misleading as measures of change in well-being.

In order to overcome distortion which may thus occur, Black suggests that an index of changing cost of living of farm families be devised and weights be used varying with the proportion of living obtained from the farm.

For comparison of real income among farm families in a given community, the use of purchase price to measure extent of family-furnished foods seems highly satisfactory. In comparing the scale of living of urban and farm families, the use of this price may appear much more satisfactory than sale price, yet may seem very unsatisfactory in that the dollar measure of real income of farm families thus secured would probably greatly understate welfare of farm in contrast with urban families. Such differences in the purchasing power of the dollar could be corrected if facts concerning differences in cost of living in various communities were available. So far few facts are available to facilitate such comparisons. The process is greatly complicated by differences in content of living.

A comparison of dollars spent by city families with dollars spent by farm families, plus valuation of a stock of physical products from the farm in terms of city price, completely distorts the relative importance of various products used by farm families. A large quantity of a certain food, say milk, may be used because of its low cost to farm families. If this large quantity were valued at city prices, the resulting valuation overstates farm family well-being since at city prices the amount of well-being contributed by this quantity of milk might have been procured at much lower cost in some other foods in the city market. To price products purchased or produced in one market, by prices in another market, is falsely to assume that a given quantity of product provides a specific amount of satisfaction or well-being.

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[34] *Ibid.*, p. 15.

A fundamental criticism of the use of city prices to impute value to products from the farm arises from the fact that only one block of the things which the farm family uses is valued in city prices. Williams is of the opinion that if these are used to impute value to products from the farm it would seem advisable to use them also for pricing the products which are purchased.[35] It might also be enlightening to price the products which city families use in the markets in which farm families buy. It is certainly true that some foods used sparingly by farm families because of their high cost are commonplace to many urban families; fresh meat in the summer and fresh fruits and vegetables in the winter, for example.

When city prices are used only to impute value to the products from the farm, some rather incongruous situations may arise. For example, one farm family might raise a very large part of its food supply. On a nearby farm another family raises only a small part. If the value of the food from first farm is valued at city prices, then the imputed value of the food consumed by the farm family that is raising a large proportion of its own food supply will be much greater than the expenditures of the farm family that is buying most of its food even if the two families have identical diets.

It has been suggested that farm-urban comparisons be confined to trends in level of real income for periods under consideration, the two groups having a common base year. Such a comparison necessitates cost-of-living indices for both groups that give a fairly accurate measure of changing real income. For farm-family relative changes in money expenditure and living from the farm would have to be taken into account.

Trends in Prices Used

Early estimates of value of family-furnished food were largely incidental to farm-management analysis with special reference to commercial crops. In such studies attention was concentrated on money income and sale prices were used in imputing value. Commonly no allowance was made for farm processing, and often no value is imputed to products not commonly sold in the community.

The U. S. Bureau of Agricultural Economics for its income series continues to impute a value to farm products consumed by the family on the basis of local sale prices.[36]

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[35] See, for example, Williams *et al., Studies of Family Living in the United States and Other Countries, op. cit.,* p. 63.

[36] This method has also been used in other recent studies. For example, E. S. Jones, *The Cost of Living for 57 Industrial Families and for 98 Farm Families in Georgia,* Ga. Exp. Sta. Bul. 180, 1933; E. A. Willson, *Incomes and Cost of Living of Farm Families in North Dakota, 1923–1931,* N. D. Agr. Exp. Sta. Bul. 271, 1933; E. L. Kirkpatrick, P. E. McNall, M. L. Cowles, *Farm Family Living in*

At the present time there is a tendency in family-living studies to use purchase price. The Consumer Purchases Study for the first time provides data from many parts of the country on the value of family-furnished food imputed on the basis of prices at most likely place of purchase. The publication of its findings should serve to stimulate still further the use of purchase price as a basis of imputing value. There is great need, however, for a study of differences in cost of living in various communities in order that the data being published are not made the basis of false conclusions concerning relative level of income and food consumption.

Interpretation and Comparison of Studies

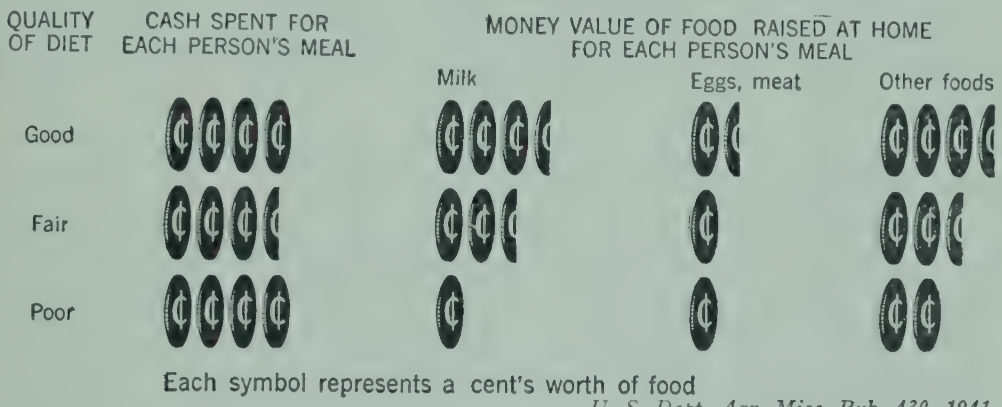
In interpreting the findings of various studies it should be remembered that methods of imputing value are far from standardized. Furthermore, some investigators appear to have been quite unaware of how the method used may have influenced their valuations. In some studies no mention is made of method of imputing value; or it is described only generally, for example, "wholesale" and "farm" prices or "current retail." It is highly important that the method be consciously selected, and in presenting the findings the investigator should call attention to important assumptions made. Until methods are more standardized, it seems desirable to give data on the quantity of food in terms of pounds, bushels, quarts, etc. It also seems desirable to have further investigation of difference in results secured when using sale and purchase prices. Studies continuing to impute value on the basis of sale price and studies made in the past in which this method was used will be more useful for comparative purposes if further data on this point are available. It must be recognized, however, that the crudeness of basic data used in most studies make futile refined price calculations to take account of seasonal change in consumption and exact quality of products consumed. Where the inventory method is used and supervised records are kept, attention to such details in imputing value has merit. Careful investigation of the cost of alternatives, taking into account extent of processing and family buying practices, would probably be most rewarding in studies made of economy in the use of resources by farm families.

Wisconsin, Wis. Agr. Exp. Sta. Res. Bul. 114, 1933. The method is also quite common in estimating farm-furnished products in order to determine farm-family living from family records sent in to various agricultural extension services and in many of the studies of part-time farming made during the thirties.

6

Family-Furnished Food: Farm Families

Recent studies indicate clearly how well founded is the intense interest in family-furnished food, long existing among those concerned with farm-family welfare: "Money spent at the grocery is less significant than the kind and amount of home-grown protective foods in determining the quality of diets that farm families in the lower income groups achieve." [1]



U. S. Dept. Agr. Misc. Pub. 430, 1941.

Pictogram 1.

Home-Grown Protective Foods Make the Difference.

The relationship between quality of diet and cash expenditure for food and foods raised for home use by families in the Southeast with income between $500 and $1,000 is shown in pictogram 1.[2]

Food production by families for their own consumption can best be considered under two categories: (*a*) making basic food products available and carrying on those processes that tend to be performed only if the food comes from one's own farm or garden; and (*b*) other food preservation, preparation and serving commonly carried on within the home. At times a question may arise as to which class a certain activity belongs. This is true, for example, of canning. Purchased food, for example, may be canned; yet the time given to this task tends to be greater where there is a garden of considerable size than where there is no garden or only a small one.

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[1] U. S. Dept. Agr. Misc. Pub. 430, 1941, p. 12.

[2] Income includes cash income, value of rent-free dwelling, and produce from the farm.

In considering family-furnished foods many questions arise, for example: (1) How much home-furnished food is there and how important is it in total food supply and to total living? (2) What changes have occurred and what appear to be present trends? (3) What factors determine the extent of family-furnished food? (4) What is the relative advantage of raising or making versus buying? (5) Should family production be increased and, if so, what conditions would promote it?

In picturing farm-furnished food, attention will be given first to trends and then to differences by regions, type of farming, tenure, family type, and other factors. Part-time farming and value of family-furnished food of village families will be considered in Chapter 7; and the economy of family-furnished food in Chapter 8. That processing commonly classed with household tasks will be discussed in Chapter 9.

Sources of Data on Food from Farm and Garden

Information on family-furnished food is available from several sources, for example, (1) census of agriculture, (2) crop and livestock reports of the U. S. Bureau of Agricultural Economics, and (3) studies of family living, income, and farm management. Data vary greatly in accuracy. Difficulty frequently arises in making interstudy comparisons because of failure to include all foods used and to use similar food classifications and similar methods of imputing value.

For any one study, accuracy of data may vary with products. It is easier, for example, to estimate at the end of the year the number of hogs slaughtered for family use and their probable weight than to estimate the quantity of milk, lettuce, and carrots used. Accuracy of estimates is likely to vary inversely with the length of consumption period covered. Data on the food used from the farm and garden in many studies of family living and farm management include estimates made only at the end of the year. It has been found that families estimate less accurately food used from farm and garden than their money expenditures for family living. In studies attempting to ensure a high level of accuracy, an inventory of the food on hand is taken at the beginning and the end of the study and a record is made of all food purchased and taken from farm and garden during the period covered. Some supervision in weighing farm and garden foods usually must be given. As might be expected, the expense of this method interferes with its extensive use.

*Table 7. Ranking of Various Products in Degree of Commercialization and the Average Annual Home Consumption for Every $100 of Gross Income from Product, United States, 1929 to 1938 **

Products	Average Ranking from Low to High by Degree of Commercialization, 1929 to 1938 †	Average Annual Home Consumption for Every $100 of Gross Income from Product
Sorgo syrup	1.3	$63.12
Sweet potatoes	2.1	50.04
Chickens	3.5	34.76
Plums and apricots	4.9	31.46
Sugar cane syrup	5.9	31.90
Potatoes	6.3	25.18
Eggs	6.5	24.57
Milk	8.1	21.69
Pecans	9.7	19.93
Hogs	10.8	18.99
Peaches	11.3	18.20
Apples	11.4	18.37
Buckwheat	12.8	15.54
Pears	13.1	15.97
Cow peas	14.4	14.05
Cherries	15.5	13.78
Corn	16.7	10.48
Maple sugar and syrup	16.7	11.16
Small fruits	19.3	6.52
Grapes	20.0	5.77
Peanuts	21.8	3.79
Rye	22.4	3.95
Wheat	23.0	3.13
Strawberries	23.3	2.93
Cattle and calves	24.4	2.36
Sheep and lambs	25.9	1.83
Dry, edible beans	27.3	0.76
Other fruits and nuts	27.6	0.69
Rice	29.0	0.25

* U. S. Dept. Agr., Bur. Agr. Econ., Income Reports 1929–38 (mimeo.).

† The products listed were ranked, the product with the highest proportion used at the farm where produced being given the rank of one. The rankings for each year were then averaged. There were twenty-nine products for which data were available for the entire ten years.

Agricultural extension services in some states suggest to families that they keep records of expenditures and of farm produce used.[3] Records of money expenditures are usually much more complete than those of food from the farm. At the end of the year, in order to get a measure of value of family living, it is usually necessary to estimate the extent of family-furnished food. Crude data such as these are of value chiefly as a means of stimulating the families concerned to take a greater interest in weighing the advisability of increasing or reducing their production.

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[3] See, for example, *Sixty Thousand Farm Families Enroll in Tennessee Food-Supply Program*, Ext. Service Rev. 11, August, 1940, p. 105. For a report on this program see L. M. Hodges, "They Grow Their Own—and Live Better," *Reader's Digest*, April, 1942, pp. 55-7.

Division between Sale and Family Use

Foods produced on a farm flow in two directions: to the market and to the operator's kitchen. The division of specific foods between market and family use for the United States as a whole is shown in Table 7. For example, 63 per cent of all sorgo syrup processed on farms and 50 per cent of the sweet potatoes produced are for family consumption. A larger proportion of plums and apricots than apples, of hogs than beef, of chickens than eggs, is for use on the farm where grown or raised. Cereals, cattle and calves, and sheep and lambs are among the important foods, ranking high in degree of commercialization Among fruits, citrous fruits rank highest.[4]

The degree of commercialization of any crop varies greatly with region. Whereas for the United States approximately 80 per cent of the hogs are sold, Inman[5] reports that in Alabama 83 per cent of the hogs are slaughtered on the farm where raised. For the United States approximately 35 per cent of the chickens are consumed on the farm where raised, whereas in Alabama the proportion is 70 per cent.

In 1938 for every $100 cash income from milk, home consumption in Vermont and Wisconsin was $5.00, whereas in Alabama and North Carolina it was $264 and $202, respectively. In South Carolina in 1938 for every $100 of cash income from chickens, home consumption was $235; whereas in New Hampshire it was $6.00.[6]

Importance of Family-Furnished Food in the United States

An estimate based on recent studies of family incomes and expenditures reports for 1935–1936, for the total population, family-furnished food by income groups. The marked decline occurring in the importance of such food, with fall in income, is due in large part to the heavy concentration of farm families in lower income brackets. In spite of a very large urban population, 15.4 per cent of the total food supply, according to these data, is family furnished. Its total value in 1935–1936 is estimated to be $2,116,821,600.[7]

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[4] They are omitted from Table 7 because data are not available for the entire period covered.

[5] B. T. Inman, *Production, Purchase, Sale, and Use of Specified Foods on Alabama Farms,* Ala. Agr. Exp. Sta. Cir. 81, 1939, p. 6.

[6] U. S. Dept. Agr., Bur. Agr. Econ., *Gross Farm Income and Government Payments in 1938* (mimeo.), June 5, 1939, p. 20.

Trends in Family-Furnished Foods

Several measures of trends in farm-furnished foods may be used, for example: (1) percentage of farms having crops or livestock likely to be important sources of family-food supply: (2) average dollar value per family or per capita of farm-furnished food;[8] and (3) proportion which family-furnished food is of gross or net cash farm income or of family value of living.

Numerous studies of farm-family living in the United States have been made in the past thirty years. However, classification of products, selection of families included, and other aspects of method used render most data of this type, so far secured, unsuitable for revealing trends.[9]

One study made in New York State is of special interest since it presumes to cover families of similar economic status in 1909, 1918, and 1928. During each of these years most of the families supplied themselves with milk, eggs, poultry, potatoes, and garden crops. The percentage of families reporting the other foods showed, for the most part, sharp decline; and the quantity of most products supplied, apart from milk, was in 1928 considerably less than in 1909. For example, per capita consumption of family-furnished wheat flour furnished fell from 148 pounds in 1909 to 29 pounds in 1918, and dry beans from 13 to 7 pounds.[10]

Diversity in livestock kept and in crops raised affects the extent to which a family derives its food supply from its own farm. The regular census reports provide data of interest. Highlights of such data are:

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[7] R. Borsodi, *Prosperity and Security,* 1938, estimates that agricultural products produced and consumed at home amounted to $2,611,000,000 in 1929, or approximately $31 for every $100 of agricultural products sold.

[8] If price level during the period being considered has changed, values, in order to indicate changes in volume of food, must be adjusted by using a suitable price index.

[9] Some studies made of similar families over a period of years lack some of these defects. The period covered, for the most part, is, however, very short. See, for example, E. A. Willson, *Incomes and Cost of Living of Farm Families in North Dakota, 1923–31,* N. D. Agr. Exp. Sta. Bul. 271, 1933; R. C. Freeman, *Living Expenditures of a Group of Illinois Farm Families, 1930, 1931, 1932,* Ill. Agr. Exp. Sta. Bul. 406; and later mimeographed publications.

[10] S. W. Warren, *An Economic Study of Agriculture, North Livingstone County, New York,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 539, 1932, p. 197. The number of families reporting in 1928 was very small.

Table 8. Percentage of all Farms Reporting the Slaughter at the Farm of Specified Livestock, 1919, 1929, and 1939

Region	Cattle and Calves			Sheep and Lambs			Swine		
	1919	1929	1939	1919	1929	1939	1919	1929	1939
United States	13.8	2.9	10.6	1.5	0.7	1.2	70.8	51.3	66.8
New England	16.8	4.0	10.1	2.3	0.9	0.9	52.3	20.3	27.3
Middle Atlantic	23.1	7.1	15.5	2.0	0.9	0.9	68.6	40.0	51.7
East North Central	17.9	4.1	16.1	1.3	0.6	0.8	76.0	56.9	66.8
West North Central	23.7	5.8	19.7	1.9	0.8	1.2	77.8	65.4	72.6
South Atlantic	6.4	0.9	2.9	0.9	0.4	0.3	75.8	59.2	75.5
East South Central	4.7	0.3	1.4	0.9	0.2	0.3	74.6	51.9	75.4
West South Central	7.8	1.0	5.7	0.4	0.2	0.6	64.0	43.8	68.9
Mountain	25.5	6.9	23.1	6.9	5.8	11.3	52.2	34.8	47.7
Pacific	19.2	2.1	17.7	2.6	1.4	2.3	37.8	14.5	26.4

1. Since swine more frequently than any other livestock is slaughtered at home, a shift in the proportion of farms reporting swine is especially significant in indicating the proportion of farms that are providing their own meat. For the United States the proportion of farms reporting swine from 1900 to 1930 declined from 76 to 56 per cent, but by 1940 had risen to 63 per cent. The decline from 1900 to 1930 was much greater in the New England, Middle Atlantic, and Pacific regions than in other regions, and in these regions from 1930 to 1940, the percentage of farms reporting swine increased relatively little. The declines for the period 1900 to 1930 were 54 to 22 per cent for New England and 80 to 73 per cent for the West North Central. The greatest increases from 1930 to 1940 in the proportion of farms reporting swine occurred in the East and West South Central regions; increases were 57 to 71 per cent and 53 to 65 per cent, respectively.

2. The proportion of farms reporting the slaughter of livestock for the years 1919 to 1939 has also undergone a change, 1929 being considerably under the 1919 level and 1939 being much above the 1929 level. The increase from 1929 to 1939 is much more striking for cattle and calves than for swine. (See Table 8.) This shift in the trend of home slaughter undoubtedly is related to the introduction of cold-storage lockers, which are probably being used for beef to a greater extent than for pork. The number of farms reporting the home slaughter of swine in 1939 was considerably larger than the number of farms which, at the time of the census

in 1940, stated that they had swine on the farm: 108 farms reported that the home slaughter of these had occurred during the preceding year for every 100 which had swine at the time the census was taken in 1940. The proportion of farms reporting the slaughter of sheep and lambs in all cases was at a low level. This can be explained only in part by the fact that fewer farms have sheep and lambs than have cattle and swine. Only 12 per cent of the farms that in 1940 reported having sheep and lambs had slaughtered them on the farm during 1939. A striking difference occurred among the regions: 5 per cent in the East North Central region and 67 per cent in the Mountain region. Consumer preference is undoubtedly a factor in this difference.

3. The proportion of farms reporting cows and heifers milked showed a slight decline from 1924 to 1929 (78 to 73 per cent) and a slight increase from 1929 to 1939 (73 to 77 per cent). The decline from 1924 to 1929 was most marked in the Pacific region and in the South. The increase from 1929 to 1939 was pronounced only in the South, a decline continuing in the New England, Middle Atlantic, and North Central regions.

4. The percentage of farms reporting butter churned has fallen considerably since 1899.

Year	*Percentage of Farms Reporting Churning*
1899	63
1909	60
1919	55
1929	48
1934	56
1939	48

Furthermore, a decreasing proportion of the butter churned on the farm is sold: in 1919, 20 per cent; in 1929, 10 per cent; and in 1939, 6 per cent. The percentage of those farms on which some milking occurred and which reported the churning of some butter was higher in 1934 than in 1929: 73 per cent in 1934 in contrast with 66 per cent in 1929. This was undoubtedly a depression effect, for by 1939 the proportion was down to 63 per cent. In the South there is no marked trend away from churning on the farm, as is apparent for the North and East.

5. The proportion of farms reporting chickens is at a relatively high level, although some decline has occurred. In 1910, 1920, 1930, and 1940, 91, 88, 85, and 85 per cent, respectively, of all farms reported chickens over three months old. Trends differ with regions. A marked downward shift in the percentage of farms reporting chickens is reported for the New England and Middle Atlantic regions, whereas steady gains are reported

for the census years 1930, 1935, and 1940 for the South Atlantic and South Central regions.

6. Relatively few farms reported hives of bees, and the proportion has declined from 8 per cent in 1920 to 7 per cent in 1930 and to 4 per cent in 1940. A decline occurred in all regions.

7. A considerable decrease occurred in every region in the proportion of farms having apple orchards: For the United States as a whole, there was a drop from 47 per cent in 1925 to 30 per cent in 1940. Even the Pacific region showed a decline: 42 per cent of the farms reported apple trees in 1925 and 30 per cent in 1940. Except in regions especially noted for their commercial supply, that is, Middle Atlantic, Mountain, and Pacific regions, the average number of bushels per farm reporting apples also declined. For example, a decline from 83 bushels in 1924 to 50 bushels in 1935 occurred in New England, a region little affected by the drought of 1934. A slightly larger proportion of the farms reported cherries, pears, and grapes in 1935 than in 1930. None of these fruits was reported, however, by more than 25 per cent of the farms.

8. An upward trend is reported by the census data of 1929, 1934, and 1939, in the proportion of farms reporting vegetable gardens: 69 per cent of the farms in 1929 and 79 per cent in 1939 reported a garden. For the country as a whole, the proportion in 1934 was about the same as in 1929. In 1934, however, a severe drought affected gardens in some regions. The West Central region, which was rather hard hit by the drought, had 71 per cent of the farms reporting gardens in 1929 and only 46 per cent in 1934. In all the regions which were little affected by drought, the proportion of farms reporting gardens in 1934 was considerable above the level for 1929; and in 1939 the percentage of farms reporting gardens was higher for every region than in 1929.

Data on value of products from vegetable gardens are very crude. When adjusted for changing prices,[11] the average value per farm reporting a vegetable garden was 12 per cent higher in 1929 than in 1939. An increase was reported for every region.

In the summary of the status of family production, as indicated by the census data of types of crops raised, several facts stand out. Products most frequently provided are chickens, eggs, milk, cream, vegetables, and pork. Over several decades a downward trend for all these types of family production is apparent. Some reversal appears since 1930 in the proportion of farms reporting home slaughter, milk cows, and vegetable gardens. Increases are more pronounced in the South than in other regions.

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[11] In adjusting for changes in prices, the farm-price index of commercial truck crops was used.

Trends in amount of foods from their own farm utilized by farm families are also indicated by annual crop and livestock reports. Consumption of family-furnished wheat, corn, and hogs was higher in 1914–1917 than in 1910–1913. The amounts fell throughout the period 1922–1929, rose somewhat during 1930–1933, but were lower again in 1934–1937. Again perhaps it should be pointed out that the decline in this last period may have been influenced by widespread drought conditions. Per capita consumption of family-furnished beef and veal declined from 1910–1913 to 1926–1929; and a slight increase is reported for the period 1930–1937.

A slight but consistent increase occurred from 1910 to 1937 in per capita consumption by farm families of home-furnished sheep and lambs. Farm families gradually may be acquiring a greater liking for lamb and mutton; or the greater frequency of small families may be bringing the small carcass of sheep or lamb into greater favor.

Averages for the entire country in many cases conceal interesting differences among states. This holds true with respect to wheat. During 1910–1913 the four states ranking highest in per capita consumption of family-furnished wheat were, in descending order, Pennsylvania, North Carolina, Virginia, and Ohio. North Dakota at that time, with wheat as its major crop, is reported to have had a consumption of wheat from the home farm of 0.142 bushel per capita, that is about one-tenth the home-furnished wheat used by the Pennsylvania farm population. Other outstanding wheat-producing states had much the same status as North Dakota. During the depression, however, these states appear to have turned to local or home milling to provide their own flour supply, North Dakota being in the lead. During the thirties some increase in the use of wheat from the home farm occurred in most states.[12]

Kuznets, in his recent publication *Commodity Flow and Capital Formation,* estimates for the years 1919 to 1933 the total value of farm food products retained for consumption as well as those sold. The importance of food retained for consumption by the operator's family moved downward during the twenties, reaching a low level in 1929 and 1930. (See Table 9.) The marked rise in relative amount retained, which is indicated for 1921 and again for 1932 and 1933, might have been due to the maintenance of a relatively high level of food consumption in the depression by farm families, in contrast with families in general, or to a tendency, by farm families, to shift from commercial food products to those from their own farm. It seems highly probable that both these conditions occurred.

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[12] See U. S. Dept. Agr., *Income Parity for Agriculture* (mimeo.), 1938, and *Farm Production and Farm Disposition of the Principal Field Crops, 1937–39* (mimeo.), 1940.

Table 9. Value of Food Retained in Relation to Commercial Food, 1919 to 1933 *

Year	Value of Food Retained at Farm for Every $100 of Commercial Food Destined for Domestic Consumption †	Percentage of Population on Farms
1919	$17.7	30.2
1920	15.4	29.9
1921	15.4	29.6
1922	15.6	29.1
1923	17.4	28.1
1924	16.8	27.4
1925	16.0	27.0
1926	15.9	26.5
1927	15.2	25.7
1928	13.9	25.4
1929	12.3	25.0
1930	12.4	24.6
1931	15.3	24.7
1932	16.9	24.9
1933	17.5	25.3

* S. Kuznets, *Commodity Flow and Capital Formation*, Nat. Bur. Econ. Res. Pub. 34, Vol. I, 1938, pp. 146–8, 150, 318.

† Values of both groups of products were in terms of 1929 price level.

A general all-over picture of trend in farm products retained for use by the operator's family and of the relation of these products to gross and "net" income is given in Table 10.[13] In contrast with gross cash income, family-furnished food during the period 1925–1929 showed a consistent tendency to decline. It rose sharply, however, during the depression period, reaching a peak in 1932 and again declining.

Since many farm costs are very sticky—tending to hold up especially during the early stages of a depression—the relation of farm products retained to family living as a whole can be seen better by comparing products retained with "net" rather than with gross cash income. Such data as are available indicate that in 1932 families used food from the farm valued at $47 for every $100 of net cash income received.

If products from the farm, retained for consumption, are compared with net cash income, expressed in "constant" dollars, the importance of farm products consumed during the depression period assumes even greater importance. From 1929 to 1932 the purchasing power of net cash income fell 54 per cent, while food from the farm increased by 14 per cent; and

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[13] Only major farm-expense items were deducted; so the measure of net cash income is crude.

Table 10. Farm Income and Products Retained for Consumption by Farm Families, 1919–1938 *

Year	Cash Income from Farm, per Farm		Net Cash Income † in Terms of Purchasing Power for Family Living (1929 = 100)	Value of Products Retained for Consumption				Value of Products Retained in Terms of 1929 Prices for Every $100 of Purchasing Power of Net Cash Income (1929 = 100)
				Per farm		For every $100 cash income		
	From marketing and government payments	Available after production expenses deducted		As reported (dollars)	Value adjusted (1929=100) ‡	From marketing (dollars)	Available after production expenses deducted (dollars)	
1919	2,295	1,577	1,187	326	258	14.20	20.67	21.73
1920	1,805	995	708	299	229	16.57	30.05	32.34
1921	1,146	531	521	241	245	21.03	45.39	47.02
1922	1,303	694	703	246	253	18.88	35.45	35.99
1923	1,456	800	790	269	291	18.48	33.63	36.84
1924	1,509	870	865	266	300	17.62	30.57	34.68
1925	1,583	887	855	295	281	18.64	33.26	32.87
1926	1,520	808	788	287	295	18.88	35.52	37.44
1925	1,708	1,012	975	301	287	17.62	29.74	29.44
1926	1,665	954	931	283	291	17.00	29.66	31.26
1927	1,688	977	971	274	284	16.23	28.05	29.25
1928	1,754	995	992	273	257	15.56	27.44	25.91
1929	1,780	987	987	249	249	13.99	25.23	25.23
1930	1,422	737	787	222	237	15.61	30.12	30.11
1931	978	465	583	179	272	18.30	38.49	46.66
1932	709	312	456	147	284	20.73	47.12	62.28
1933	815	431	625	155	317	19.02	35.96	50.72
1934	982	583	755	156	259	15.89	26.76	34.30
1935	1,083	648	825	192	276	17.73	29.63	33.45
1936	1,218			202	274	16.58		
1937	1,319			211	263	16.00		
1938	1,177			186	291	15.80		

* Data on cash income and products retained for consumption by farm families for the period 1925–1938 were taken from U. S. Dept. Agr., *Agricultural Statistics*, 1939. The series for 1919 to 1926 were compiled from data in *Agricultural Statistics*, 1939, p. 434, and from Simon Kuznets, *op. cit.*, Vol. I, p. 318. Data from these two sources, as is shown by data from both sources for 1925 and 1926, are not strictly comparable. Recent revisions on the series for 1925 to 1938 raised the income level somewhat and lowered the value of products retained for consumption. All data on production expenses were taken from *Agricultural Statistics*, 1939, p. 434.

† This column was determined by dividing column 3 by the price index of commodities bought by farm families for family maintenance. See *Agricultural Statistics*, *op. cit.*

‡ The index used in adjusting the value of food consumed to the 1929 price level was a combination of five indices of farm prices of grains, fruits, dairy products, chickens and eggs, and meat animals. They were weighted 2, 33, 30, 20, and 15, respectively. "The weights representing an approximation of the proportion of the different commodity groups to the total of all commodities retained by farmers for their own use," Simon Kuznets, *op. cit.*

by 1933 the value of products retained for consumption was, according to this measure, 27 per cent above the 1929 level.

Shifts in Family-Furnished Food during a Business Cycle

Decline in income, relative change in price of food products sold and of substitutes that might be purchased, and general uncertainty prevailing were important factors affecting production of family-furnished foods during the early thirties. The *Agricultural Outlook for 1934* reports:[14]

> During 1933 farm families continued their efforts to be as self-sufficient as possible with respect to food. The pressure of taxes, debts, and other demands on the small amounts of available cash made this an advisable, and in many ways a necessary procedure. Many individual families enlarged and coordinated their live-at-home programs, building on the experience of preceding years and making use of carefully planned yearly food budgets which are now available. A marked increase has been apparent during the summer and fall in the output of farm gardens and in the quantity of food preserved by canning, drying and brining, and by storage in cellars and pits. The home slaughtering of animals has increased. The home manufacture of many food products formerly purchased has also been prevalent. The home milling of flour and cereals is an outstanding example. Most farm families have been accustomed to producing from 40 to 60 per cent of their food supply and advancing this proportion to 75 to 90 per cent as has been done in many communities represents an emergency measure.
>
> In addition to the live-at-home planning on individual farms, cooperative gardens and food-preservation programs have been developed with the relief agencies in most states. One result has been the increase in small supervised canning centers; in one state alone 175 such centers were in operation this fall; milling of flours and cereals is an outstanding example.

Certain shifts in food production have already been discussed in connection with data on trends. Other studies, more limited in scope and mainly for the early depression years, are of interest.

In a county in Michigan 114 families, providing data, report a larger proportion of their total food supply produced on the farm in 1932 than in 1929. Whereas in 1929, 16.4 per cent of the total pounds of food consumed were purchased, for 1932 the proportion was 13.6 per cent. (See Table 11.) This occurred in spite of a decline from 1929 to 1932 in the proportion of fresh fruit consumed which came from the farm. The apple

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[14] U. S. Dept. Agr. Misc. Pub. 182, 1933.

*Table 11. Annual Amounts of Food Used per Family, 1929 and 1932, 114 Michigan Farm Families **

Kind of Food	1929		1932		Percentage of Total Food Produced on Farm	
	Purchased (pounds)	Total (pounds)	Purchased (pounds)	Total (pounds)	1929	1932
Meat and fish	164	641	140	630	74.4	77.8
Fresh meat	97	574	87	577	84.0	84.9
Eggs	2	253		245	99.2	100.0
Cheese	20	42	16	41	52.4	61.0
Milk, cream, ice cream	55	2,450	24	2,567	97.7	99.1
Fats	156	247	162	252	36.8	35.7
Baked goods	236	1,473	159	1,455	84.0	89.1
Breakfast cereals, starches	116	116	113	115	00.0	1.7
Fruit—All types	480	1,088	416	782	55.9	46.8
Fresh	356	776	303	483	54.1	37.3
Canned	90	247	84	241	63.6	65.1
Dried	30	30	26	26	100.0	100.0
Jams and jellies	3	33	2	32	90.9	93.7
Vegetables—All types	176	2,262	115	2,332	92.2	95.1
Fresh	147	2,060	93	2,111	92.9	95.6
Canned	28	157	17	173	82.2	90.2
Dried	1	45	4	47	97.8	91.5
Total	1,405	8,572	1,145	8,419	83.6	86.4

* I. H. Gross and Julia Pond, *Changes in Standards of Consumption during a Depression*, Mich. Agr. Exp. Sta. Special Bul. 274, 1936, p. 11.

crop from home orchards in 1932 was much below average, and the total consumption of fresh fruits in 1932 was much below that of 1929. For many foods for which family production is feasible, for example, meat, cheese, canned and fresh vegetables, and baked goods, the depression brought a considerable increase in the proportion produced by the family. There was, however, only a very slight increase in the extent to which families got their cereals from the farm; and the consumption of fats from the farm showed no tendency to increase. Butter production in local creameries rather than in the home for these families was apparently little affected by the depression. Bread-baking, however, to a considerable extent returned:

224 pounds of bread were purchased per family in 1929 and only 157 pounds in 1932.

A study was also made of the effects of the depression on the practices of a group of Wisconsin farm families. The shift in importance of family-furnished food indicate that these families who were already producing a large part of their food supply were best able to effect an increase.[15]

The annual per capita value in "constant" dollars from 1929 to 1938 in family-furnished food by regions is shown in Table 12. In every region the value of such food was lower in 1930 than in 1929, and in every region 1933 marks the high point in value. These data suggest that expansion of family-furnished food tends to lag behind a fall in income. In the South Atlantic region per capita value of family-furnished food in 1933 was approximately 30 per cent and in the East South Central 24 per cent over 1929 level. The smallest increase is reported for the West North Central region.

*Table 12. Per Capita * Value of Farm-Furnished Food by Regions, 1929–1938 †*

Region	Per Capita Adjusted Value (1939 = 100) ‡										Average Annual Ranking of Each Region §		
	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'29–'33	'34–'38	'29–'38
New England	$68	$60	$67	$72	$79	$66	$66	$65	$49	$65	1.6	2.5	2.0
Middle Atlantic	67	61	68	71	80	65	66	66	56	66	1.4	1.8	1.6
East North Central	60	44	60	60	67	56	64	64	58	60	4.5	3.1	3.9
West North Central	62	56	60	60	64	49	63	57	57	59	3.9	4.6	4.2
South Atlantic	53	48	60	62	69	61	62	62	56	60	3.8	3.8	3.8
East South Central	50	47	55	56	62	57	55	58	52	55	5.8	5.2	5.5
West South Central	45	42	51	50	52	47	52	52	48	49	8.2	7.3	7.7
Mountain	48	42	47	50	54	46	49	52	47	49	8.0	8.0	8.0
Pacific	47	33	49	51	56	47	47	46	39	46	7.8	8.7	8.2

* In determining per capita figures, yearly estimates of population reported in U. S. Dept. Agr., *Agricultural Statistics*, were used. These are for January 1st. The population of each year was divided into the value of products of the preceding calendar year.

† U. S. Bur. Agr. Econ., *Crops and Markets*, Vol. X, 1933, and subsequent publications.

‡ The index used in adjusting values is that described in Table 10.

§ For each year the separate regions were ranked according to per capita value of products, the region with the highest per capita value receiving the rank of one. Rankings were then averaged for the two 5-year periods and for the 10-year period.

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[15] E. L. Kirkpatrick and others, *How Farm Families Meet the Emergency,* Wis. Agr. Exp. Sta. Res. Bul. 126, 1935, pp. 6 and 7.

Data on per capita value of crops and of livestock are reported separately by the U. S. Bureau of Agricultural Economics.[16] Much greater year-to-year variation occurs for family-furnished crops than for family-furnished livestock. In 1933 crops were approximately 50 per cent above the 1929 level, whereas livestock was up only 5 per cent. Garden produce was high during 1931, 1932, and 1933 in contrast with 1929 and 1930. Family-furnished eggs and chickens per capita showed little change during the period 1929–1938.

Some indication of an upward trend in family-furnished milk per capita is apparent. This trend is in line with the consumption of milk by the total population and is probably not related to any great extent to the depression.

Family-Furnished Food by Regions

Data from the census, the livestock and crop reports of the Department of Agriculture, and the Consumer Purchases Study reveal important regional differences in amount and importance of family-furnished foods. Rainfall, length of growing season, type of commercial crop, local prices, income level, customs, and other things all have a bearing on these differences. The nationwide picture of family-furnished foods from data available in the regular census reports[17] and in reports of the U. S. Bureau of Agricultural Economics has already been considered. Here attention will be given to certain differences among regions.

Annual Livestock and Crop Reports

The relative importance of farm-furnished food varies from year to year. Hence the difference in regions should be examined over a period of time. This comparison is possible with data from crop and livestock reports. The per capita consumption of farm-furnished foods for the years 1929 to 1938, with values adjusted to 1929 prices, is shown in Table 12.[18] The South Central and the Western regions throughout the entire period rank at the bottom in per capita value of family-furnished products.

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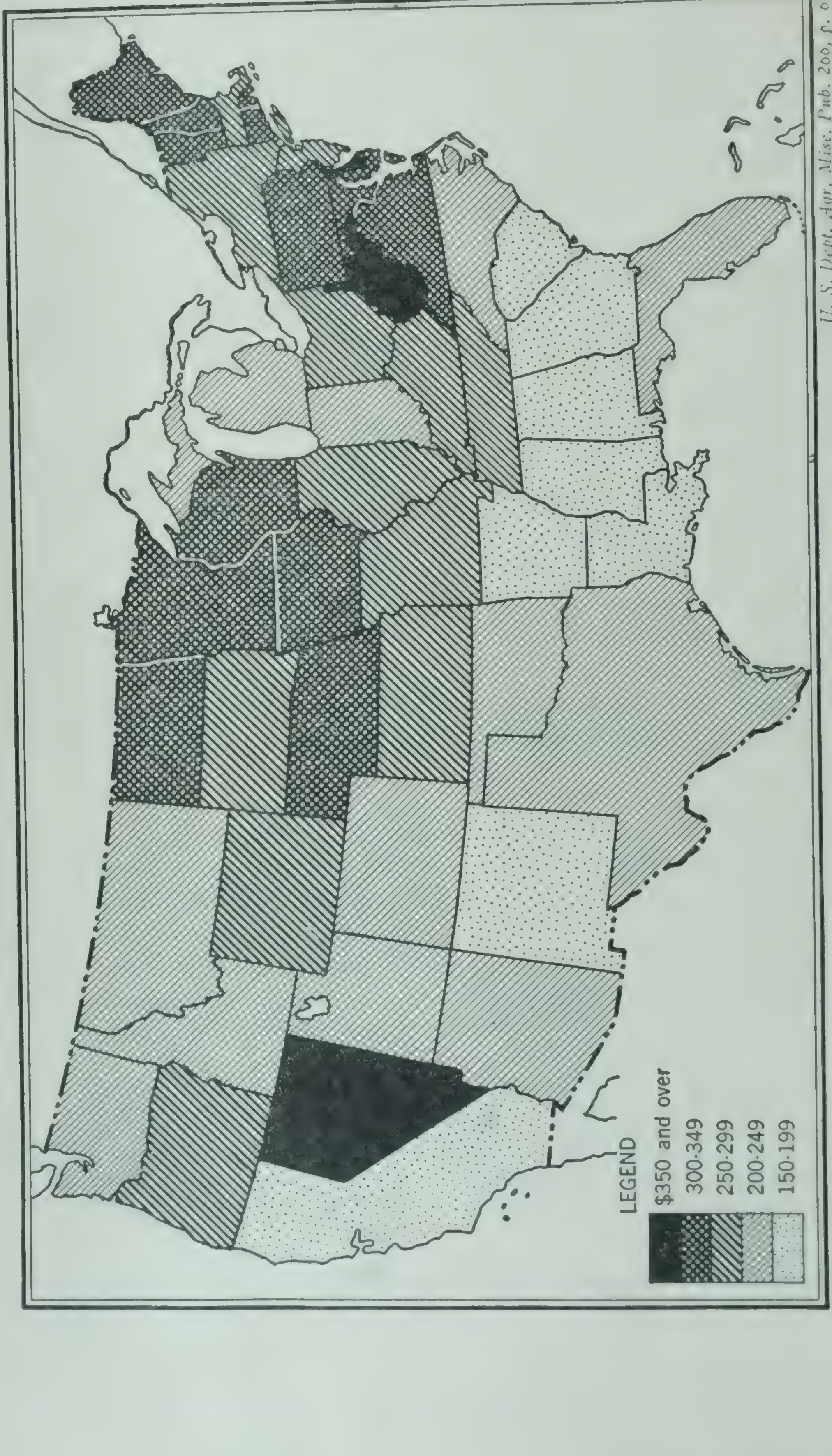
[16] U. S. Dept. Agr., *Agricultural Statistics, 1939,* pp. 239, 243, 479, 498.

[17] In the census reports, products are valued by the member of the family answering the census questions with such help from the enumerator as he sees fit to give. The valuation presumably is largely in terms of income foregone. In interpreting the data, it must be remembered that price differences may account for much of the difference in regional value. Food prices in general are lower in the South and in the North Central regions than in the New England and Middle Atlantic regions.

[18] The ranking of the regions for 1929 on the basis of these data is very similar to the ranking shown in Table 12.


LEGEND
$350 and over
300-349
250-299
200-249
150-199

U. S. Dept. Agr. Misc. Pub. 200, p. 65.

FIG. 1. The average value of farm products used by the operator's family, 1929.

U. S. Census of Agriculture

The value of products retained for consumption and their percentage of total farm products are reported for the first time in the 1930 Census. (See Table 13 and Figs. 1 and 2.) With the exception of Nevada, which has a large amount of family-furnished beef (a food of relatively high value),[19] the average reported value of family-furnished products is low in the Mountain, Pacific, and West South Central regions and in the Southern parts of the East South Central and South Atlantic regions. The high-value areas are the New England, Middle Atlantic, and North Central regions, both East and West, and the Northern part of the West South Central and South Atlantic regions.

A rather different picture is presented when one considers what percentage family-furnished products are of total farm products. Where farm income is low, farm products retained may be very important even though they are relatively low in value: for example, New England ranks first in the value of products retained but sixth in percentage of total farm products; the East South Central region ranks seventh in value of products retained and first in their proportion of the total.

Regions are, of course, far from uniform. Areas within them and communities within states differ greatly; for example, in much of Florida and sections along the lower Mississippi river, in cotton and citrous fruit areas, the proportion of total farm products retained for family use is very small.

When family living is considered, the importance of products retained is measured better in relation to net than to gross farm income. From the data in Table 13 it seems safe to conclude that during 1929, for the United States as a whole, farm-furnished products constituted at least one-fifth of net farm income. In the South Atlantic and East South Central regions the proportion was higher, being close to 30 per cent; in Western regions it was very low. Food products retained are thus a larger part of the farm income in the East than in the West, and in the South than in the North.

Attention already has been given to trends in the production of specified types of food production by regions. Here we are concerned with the variation in level.

Various regions are relatively uniform in percentage of farms reporting chickens, although for these as well as other items the Pacific region is lowest.

Some outstanding differences among regions occur.

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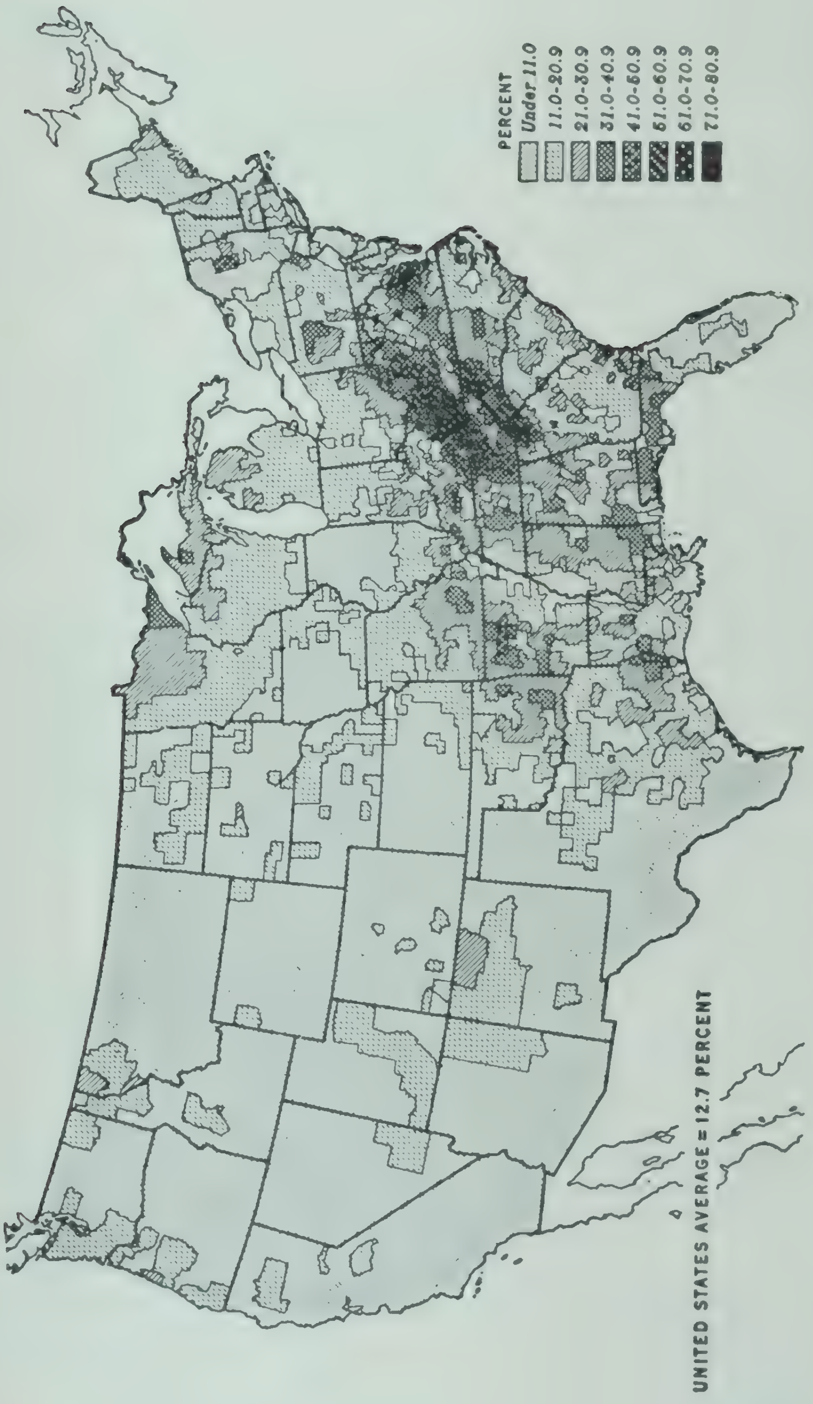
[19] See, for example, U. S. Bur. Agr. Econ., *Income Parity for Agriculture,* Part I, *Farm Income,* Section 4—"Income from Cattle and Calves," Calendar years, 1909–1937 (mimeo.).


PERCENT
▢ Under 11.0
▦ 11.0-20.9
▨ 21.0-30.9
▩ 31.0-40.9
▩ 41.0-50.9
▩ 51.0-60.9
▩ 61.0-70.9
■ 71.0-80.9
UNITED STATES AVERAGE = 12.7 PERCENT

U. S. Dept. Agr. Misc. Pub. 266, p. 65.

FIG. 2. Percentage of all farm products used by the operator's family, 1929.

Table 13. Average Value per Farm of Products Retained for Consumption, Related to Gross Value of Farm Products and to "Net" Farm Income, by Regions, 1929 *

Regions	Average Value of Products	Rank	Percentage Which Products Retained Is of Gross Income	Rank	Percentage Which Products Retained Is of Net Income †	Rank
United States	$250		12.7		18.6	
New England	312	1	11.6	6	24.2	3
Middle Atlantic	294	3	12.3	5	22.7	4
East North Central	268	4	13.1	3	18.2	6
West North Central	302	2	11.0	7	14.6	7
South Atlantic	240	5	19.8	2	29.5	1
East South Central	220	7	22.2	1	28.8	2
West South Central	205	8	13.0	4	18.3	5
Mountain	231	6	6.5	8	10.0	8
Pacific	203	9	4.3	9	8.6	9

* Fifteenth Census of United States, *Agriculture*, Vol. IV, pp. 59, 510, 913.

† Average net income per farm is an approximate figure only, derived by subtracting from the gross value of products the expenditures for feed, fertilizer, labor, electric power, taxes, and 5 per cent of the value of machinery and livestock. "These constitute usually about 60 per cent of all farm expenses." U. S. Dept. Agr. Misc. Pub. 266, p. 62.

1. Relatively few farms in the Mountain and Pacific regions have gardens. In these regions during 1939 approximately 50 per cent reported having gardens, whereas the proportion for the country as a whole was 79 per cent.

2. Farms with apple trees are most common in the Middle Atlantic, South Atlantic, and East North Central regions. Only in these regions in 1940 did at least 35 per cent of the farms report apple trees. For the United States as a whole the proportion was 30 per cent.

3. Churning is reported by a relatively high proportion of farms in the South Atlantic and South Central regions. For these regions during 1934 the proportion in each case exceeded 58 per cent, whereas in the New England, Middle Atlantic, and Pacific regions it was approximately 25 per cent or less.

4. The Pacific and New England regions rank lowest in percentage of farms reporting cows being milked, the proportions during 1940 being 57 and 67 per cent, respectively, in contrast with 83 and 86 per cent for the East and West North Central regions.

5. The New England and Pacific regions rate low in slaughter of swine: The proportions in these for 1939 were 27 and 26 per cent respectively: whereas for the United States as a whole and the East South Central region they were 67 per cent and 75 per cent respectively. (See Table 8.)

These differences are probably major factors affecting the relative level of family-furnished foods in various regions.

Consumer Purchases Study

The Consumer Purchases Study, which provides data for 1935–1936, is also an important source of information on differences among regions in family-furnished food. Families selected were not, however, representative of the regions as a whole:

> The farm sample studied was obtained from five broad geographic regions—New England, Middle Atlantic and North Central, Plains and Mountains, Pacific and Southeast. Within these regions farm sections were chosen on the basis of the type of agriculture predominating or widely prevalent.[20]

Only non-relief, native-white families were included except in the South where a separate study of Negro families was made.

In this study local prices were used in valuing home-furnished foods. These were the prices which the family would have paid if food of similar quality and quantity had been bought at the most likely place of purchase. In most cases this was a neighboring farmer. Within any section uniform prices were used. Differences in prices among sections occurred. "The farm family near a large city might charge prices practically as high as those current in retail stores . . . while farmers far from an assured market and with different transportation facilities might charge much less." [21] To obtain a uniform price to be used for a group of families in valuing a food, families were asked to furnish records of what they paid when buying or what they charged when selling the food to neighbors; these prices were then averaged.

The importance of differences in price in determining value of food is illustrated by the following example: "Milk was valued at about 10 cents a quart in Oregon, 7 in Southern California, 5 in Washington, and 4 cents in Central California." [22] Average quantities of milk used in Oregon and Washington were practically the same; had it been valued at the same price approximately two-fifths of the difference in value between the two sections with respect to the total value of home-produced foods would have been wiped out.

The value and importance of family-furnished food for many of the farm families reporting in this study are summarized in Table 14. A wide

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[20] U. S. Dept. Agr. Misc. Pub. 405, pp. iv–v.

[21] U. S. Dept. Agr. Misc. Pub. 356, p. 79. See p. 244 for prices used in different regions on separate products.

[22] *Ibid.*, p. 79. See also U. S. Dept. Agr. Misc. Pub. 405, p. 23.

Table 14. Home-Produced Food: Average Money Value of Home-Produced Food per Food-Expenditure Unit-Meal and Percentage of Food That Was Home Produced, Selected Income Classes, Farm Operators in 20 States, 1935–1936 *

(White Non-Relief Families That Include a Husband and Wife, Both Native-Born)

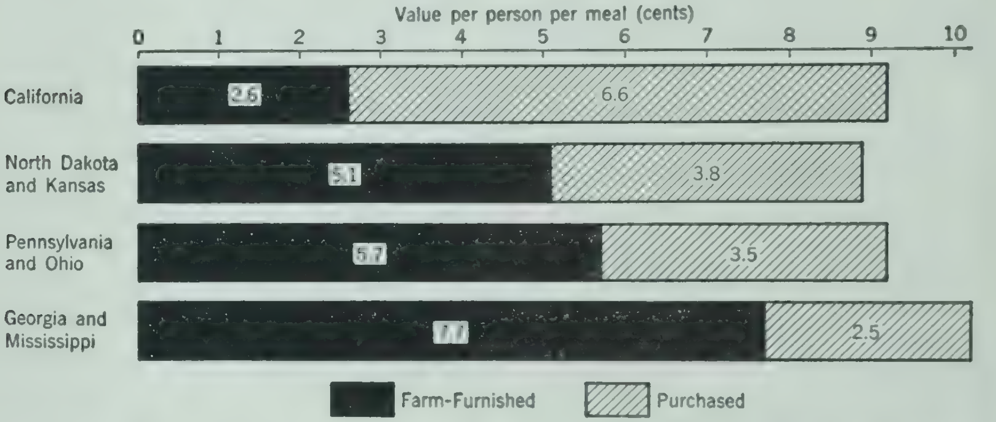
Region and Analysis Unit	Average Value (Cents) of Home-Produced Food per Unit-Meal, in Income Class					Percentage of Food Home Produced, in Income Class				
	All	$250–$499	$750–$999	$1,000–$1,249	$1,750–$1,999	All	$250–$499	$750–$999	$1,000–$1,249	$1,750–$1,999
New England										
Vermont	4.7	3.8	4.6	5.2	5.8	43	42	41	44	45
Middle Atlantic and North Central										
New Jersey	6.3	4.8	6.5	6.4	6.3	44	39	45	45	44
Pennsylvania–Ohio	6.9	5.3	6.5	6.8	7.0	63	57	63	64	63
Michigan–Wisconsin	5.0	4.2	4.7	5.0	5.6	49	47	49	50	52
Illinois–Iowa	7.9	6.7	8.1	7.9	8.4	63	64	64	64	63
Plains and Mountain										
North Dakota–Kansas	6.6	6.1	6.5	6.8	7.4	56	55	56	56	58
South Dakota–Montana–Colorado	6.7	5.8	7.1	6.4	8.1	49	46	51	50	53
Pacific										
Washington–Oregon	7.0	5.4	6.6	7.2	7.1	57	58	57	59	52
California	2.8	2.5	3.4	3.3	3.3	21	22	28	27	22
Southeast										
North Carolina self-sufficing counties	9.8	6.7	10.1	11.6	11.2	82	81	84	83	84
North Carolina–South Carolina	8.7	4.2	7.2	8.6	10.6	72	63	72	72	75
Georgia–Mississippi	7.7	5.8	7.8	8.7	8.0	69	76	75	73	66

* U. S. Dept. Agr. Misc. Pub. 405, p. 26. See Chapter 14 for discussion of food-expenditure units.

variation occurs in the value per meal of family-furnished food and the percentage of total food which is home produced. Family-furnished food is least important for families reporting from California, Vermont, and New Jersey. Both value of food per meal and its importance in the total food supply are very important at all income levels in the Southeast.

A striking difference among regions is presented in Fig. 3.

The importance of individual farm-furnished foods varies greatly among and within regions. Home-grown cereals and dried legumes are of little importance except in the South. Southern families in contrast with other families report a large quantity of leafy-green and yellow vegetables. The provision of milk is fairly uniform, except for families reporting from Southern California: Less than one-third of that group reports having family-furnished milk. Some potatoes, a major item in the American diet, commonly are home furnished except for families reporting in Kansas[23] and California. These groups are also low in percentage providing "other vegetables." For all regions "other vegetables" from the home garden are more common than potatoes. Except in California, fewer families have home-furnished fruits than have home-furnished vegetables.[24] Drought conditions may have affected some regions adversely during the period studied.



U. S. Dept. Agr. Misc. Pub. 405, p. 51.

FIG. 3. Value of food per person per meal as divided between farm-furnished and purchased food: native white farm families of operators, with one or two children under 16; family income and value of living (except farm-furnished housing) under $750. (Four selected farm areas, 1935–1936.)

Some important differences in the extent to which families provide themselves with specified foods is shown in Table 15 for different regions with families classified by income level. Several facts stand out: Home-furnished flour is important chiefly in the South. Its importance there declines sharply with increase in income. The proportion of sugar, syrups, and preserves which are home furnished is also most important in the South.

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[23] Drought probably was the cause of the low production in Kansas.

[24] See U. S. Dept. Agr. Misc. Pub. 405, Table 56.

Table 15. Percentage of Total Quantity of Specified Foods Consumed for Which No Direct Expenditure Was Made: I—New England, Middle Atlantic, and North Central; II—Southeast; III—Plains, Mountains, and Pacific, 1935–1936 *

(Operator Families, Native White)

Family Income Level (Dollars)	Percentage of Total Quantity Consumed, Received Without Direct Expenditure								
	Flour equivalent			Sugar, syrups, and preserves			Fresh fruits		
	I	*II*	*III*	*I*	*II*	*III*	*I*	*II*	*III*
All	14	48	4	17	23	14	33	78	25
0–499	7	55	4	14	22	12	44	94	22
500–999	12	52	3	15	25	13	34	86	23
1,000–1,499	15	49	4	16	26	13	32	76	28
1,500–1,999	16	46	3	17	20	18	32	69	22
2,000–2,999	18	39	5	19	20	18	36	65	30
3,000–4,999	14	31	0	18	22	14	28	69	20
5,000–and over	8	19	0	18	21	15	26	19	31

* U. S. Dept. Agr. Misc. Pub. 405, pp. 286–9. All family types are included. The picture is changed but little when data for separate family types are contrasted.

When foods are put in four classes—namely (1) vegetables, fruits, and miscellaneous foods including syrup, molasses, honey, and grain products, (2) milk and cream, (3) poultry and eggs, and (4) meat—the second group, that is, milk and cream, more frequently than any other contributes most to the value of family-furnished foods for the groups of families included in the survey. The importance of family-furnished meats in family-furnished food as a whole ranges from considerably less than 10 per cent in California to 37 per cent in Pennsylvania. The first group of foods constitutes less than 5 per cent of the total value of home-furnished foods for the Kansas families reporting and 34 per cent of the total for Vermont families.

Type of Farming and Family-Furnished Foods

Type of farming has an important bearing on volume of family-furnished foods. In 1929 for the country as a whole, animal specialty farms ranked first, general farms second, and cotton farms lowest in the average value of family-furnished products. (See Table 16.) On cotton

Table 16. Average Value of Farm Products Used by the Operator's Family and their Proportion of Total Farm Products, Classified by Type of Farm, United States, 1929 *

Type of Farm	Average Value of Farm Products	Average Value of Farm Products Used by Operator's Family		Percentage of Total Farm Products Used by Operator's Family		Percentage Farm Products Used Is of Total Products Less Certain Farm Expenses †	
		Value	*Rank*	*Percentage*	*Rank*	*Percentage*	*Rank*
All ‡	$1,835	$250		12.7		17.7	
Animal specialty	3,634	307	1	8.3	8	10.2	9
General	1,480	302	2	20.3	2	23.8	2
Dairy	2,765	294	3	10.6	7	14.4	6
Stock ranch	7,175	288	4	3.4	12	4.9	11
Self-sufficiency	425	281	5	66.1	1	74.7	1
Cash grain	2,943	271	6	8.2	9	10.3	8
Crop specialty	1,934	229	7	10.8	5	14.7	5
Poultry	1,989	219	8	10.7	6	18.7	4
Abnormal §	1,073	218	9	18.7	3		
Truck	2,881	212	10	6.4	10	11.3	7
Fruit	3,354	196	11	4.3	11	8.7	10
Cotton	1,035	180	12	15.4	4	20.4	3

* Fifteenth Census of the United States, 1930, *Agriculture*, Vol. IV, pp. 891, 913 and 930.

† Expenses deducted include feed, fertilizer and paid labor. Other expenses deducted in Table 13 were not available by type of farming.

‡ Farm includes only tracts of land of less than 3 acres unless their agricultural products in 1929 were valued at $250 or more.

§ Includes part-time farms.

farms, because of the relatively low average income, produce retained for consumption by the operator's family constituted 15 per cent of total produce; whereas on animal specialty farms having relatively high income, it was only 8 per cent of the total. Self-sufficient farms are, by definition, those where the operator's family used at least one-half the produce raised. Thus it is not strange that two-thirds of the total produce raised on them was retained. On both general and abnormal farms, families consumed about one-fifth of the total farm produce. Abnormal farms include those farms classed as part time.

General and stock ranch farms, no matter in what state they are located, rate high in value of products retained. This fact is brought out in Table 18, wherein types of farming within each state are ranked according to the value of products retained—that having highest dollar value being given the rank 1. In 43 out of the 48 states, general farms got a ranking of not less than 3, in relation to other types of farming, in value

Table 17. Number and Percentage of States in Which each Type of Farm Received a Specified Ranking on Basis of Value of Farm Products Retained for Consumption, United States, 1929 *

Type of Farm	Number of States Reporting Each Type of Farm	Number of States within Which a Specified Type of Farming Received a Rank Between †				Percentage of States with Specified Type of Farming Ranking between 1–6 (Inclusive)
		1–3	4–6	7–9	10–12	
General	48	43	5			100.0
Cash grain	44	5	14	14	11	43.2
Cotton	19	1	1	3	14	10.5
Crop specialty	48	1	15	26	6	33.3
Fruit	47	5	8	25	9	27.7
Truck	48	1	6	23	18	14.6
Dairy	48	25	21	2		95.6
Animal specialty	48	26	21	1		97.9
Stock ranch	38	28	10			100.0
Poultry	48	1	10	27	10	22.9
Self-sufficiency	48	13	25	9	1	79.2
Abnormal	48	1	4	16	27	10.4

* Fifteenth Census of the United States, 1930, *Agriculture*, Vol. IV, pp. 913–29.

† The type of farming within each state with the highest value of products was given a rating of 1, and so on in order.

of family-furnished produce.[25] In very few cases did cash grain and cotton farms receive such a ranking.

A possible explanation of difference in the value of products retained by a type of farm is indicated by data in Table 18. General, animal specialty, and stock ranch farms—all high in average value of products retained for consumption—rated above the average in proportion having pigs, cows mainly for milking, and cows and heifers for beef.

Farm Tenure and Family-Furnished Food

At times considerable discussion centers on the relation of family-furnished food to tenure.[26] Information secured in the regular census has not been used so far to show the difference by tenure of such items as the percentage of farms keeping chickens, having milk cows, a kitchen garden,

[25] Md. Agr. Exp. Sta. Bul. 346, 1933, p. 560, reports: "The survey showed that a higher per cent of those people living on general farms depended upon or used home grown or local products than did those living on specialized farms."

[26] See, for example, L. G. Ligutti and F. C. Rawe, *Rural Roads to Security,* 1940.

Table 18. Percentage of Farms Having Certain Livestock, by Type of Farming, 1929 *

Type of Farm	Percentage of Farms Having		
	Cows, Mainly for Milk	Cows and Heifers for Beef	Pigs, Not Sows and Gilts
All	74.2	6.9	44.6
General	88.7	7.4	51.2
Cash grain	77.2	12.3	43.1
Cotton	59.0	2.2	45.6
Crop specialty	59.4	3.3	43.6
Fruit	40.2	1.8	13.5
Truck	45.1	2.0	22.4
Dairy	98.2	2.0	35.8
Animal specialty	85.0	25.8	69.4
Stock ranch	49.7	61.0	34.0
Poultry	65.0	4.3	20.4
Self-sufficiency	73.5	3.9	40.1
Abnormal	89.2	5.7	42.2

* Fifteenth Census of The United States, 1939, *Agriculture*, Vol. III, p. 34.

or fruit trees. In order to investigate the matter, Iowa's 99 counties were put into five groups according to the percentage of land which in 1930 was reported to be owner operated. The dollar value of family-furnished products was practically the same for all five groups.[27] High tenancy is, however, accompanied by high farm income; hence family-furnished products with rise of tenancy, constitute a relatively smaller part of gross income. There is, however, no reason to conclude from these data that high tenancy causes family-furnished products to constitute a small part of total income. High fertility and suitability of a region to cash crops tends to reduce their importance even for owner-operators; in addition these conditions are favorable to tenancy.

Reports secured from owner and tenant families' sending in family accounts to the Agricultural Extension Service of Iowa State College indicate little if any difference in the percentage raising potatoes, having a general vegetable garden or fruit trees, or providing themselves with some cereal from the farm. These are, however, farm families with relatively high income.

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[27] With the counties grouped from low to high according to the proportion of tenancy, the value of farm-furnished products was, respectively, $337, $337, $337, $336, and $351. The percentages which these were of total farm products were as follows: 13.2, 11.3, 9.8, 9.2, 8.7.

It seems reasonable to expect that home production of fruit is affected more by tenure than is the provision of a vegetable garden, which yields within a year of planting, or of livestock products that can be moved from farm to farm with the family. An estimate was secured in 1940 from a random sample of 111 Iowa farm families on annual value of family-furnished fruits. For the families reporting value of home-furnished fruit, owners reported $27 and renters $18. The value of garden produce for owners and tenants was $69 and $60, respectively.[28] The amount of fruit produced appeared to be affected by the number of years the family had been on the farm, operated at the time of the survey.

Table 19. Percentage of Operator and Sharecropper Families Reporting Specified Farm-Furnished Foods, Family Income Level $500 to $999, Classified White and Negro *

Location	Milk		Eggs		Pork		Potatoes		Fruit	
	O	*S*	*O*	*S*	*O*	*S*	*O*	*S*	*O*	*S*
White Families										
North Carolina	36.4	23.4	98.9	93.5	90.9	75.8	93.2	90.3	48.9	37.9
South Carolina	82.1	65.8	97.9	95.5	91.9	87.4	82.4	84.7	56.6	39.6
Georgia	99.4	99.2	98.9	98.4	98.1	96.1	91.1	90.6	79.8	68.0
Mississippi	97.0	98.9	97.6	95.7	92.8	87.1	76.0	69.9	32.9	22.0
Negro Families										
North Carolina	35.4	26.4	95.8	94.0	79.2	81.5	85.4	76.9	50.0	37.0
South Carolina	76.6	53.2	97.0	88.3	93.1	89.4	73.6	72.3	45.5	23.4
Georgia	94.2	98.0	98.1	94.0	93.3	98.0	78.8	75.0	66.3	55.0
Mississippi	83.3	68.5	90.5	83.9	94.4	90.9	73.0	64.0	50.0	36.4

* U. S. Dept. Agr. Misc. Pub. 405, Table 56. *O* for operators; *S* for sharecroppers.

In the Consumer Purchases Study, families in Southern states included both operators and sharecroppers. When families are classified by type and income, families of sharecroppers, apart from a few with annual incomes in excess of $750, have less home-produced food than corresponding operator families. This is true for both Negro and white families. The difference by tenure is much more striking for fruit than potatoes and for milk than eggs. (See Table 19.)

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[28] Unpublished manuscript of M. E. Tiffany, Ia. Agr. Exp. Sta. See also H. W. Hawthorne, *Farm Management and Farm Organization in Sumter County, Georgia,* U. S. Dept. Agr. Bul. 1034, 1922, pp. 33 and 36, and Ia. Agr. Exp. Sta. Bul. 237, p. 20.

Similar findings are reported by a study of a group of Mississippi farm families. In this study the "proportion of owner, sharerenter, and sharecropper families producing specified foods in quantities recommended by nutrition specialists" was as follows:[29]

Foods	*100 Owner Families*	*117 Sharerenter Families*	*93 Sharecropper Families*
Milk	67	56	32
Lean meat	42	30	26
Fruit	13	6	1

There seems little doubt that, in some regions at least, an increase in family-furnished food is dependent on an increase in owner-operated farms or on a change in rental contract used. In many situations it is important to evolve a contract acceptable to both landlord and tenant for paying for land and equipment devoted to foods furnished for the operator's family.[30]

Income and Extent of Family-Furnished Food

In general, the higher the income the higher is the value of food products retained by the operator's family for consumption but the lower the proportion such food is of total income. In Table 20 are given for 1929 the percentage of farms in the United States having products of specified value and the value at each level of products sold and of those used by the operator's family. On almost half the farms, however, the families used at least one-third of all products raised. If products used were seen in relation to net income, their importance would appear much greater.

Data from the Consumer Purchases Study on the value of family-furnished food in relation to net income have already been presented in Table 14. As income rises, the value of farm-furnished food increases, the rate of increase being for families in general most marked at the lower levels.

No consistent change occurs, with income, in the percentage which family-furnished food is of total food consumed.

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[29] D. Dickens, *Improving Levels of Living of Tenant Families*, Miss. Agr. Exp. Sta. Bul. 365, 1942, p. 9.

[30] See, for example, National Emergency Council, *Report on Economic Condition in the South*, 1938, p. 46.

Table 20. Average Value of Farm Products Sold and Used by Operator per Farm in the United States; Farms Classified by Value of Products, 1929 *

Total Value of Farm Products (dollars)	Percentage of Farms	Value of Products per Farm		Products Used for Every $100 Sold	Percentage of Products Used
		Used †	Sold		
Under 251	6.6	$159	$ 24	$655.05	86.9
251– 400	8.7	158	166	95.31	48.8
401– 600	12.7	236	303	77.99	43.8
601– 1,000	20.8	240	570	42.15	29.6
1,001– 1,500	15.6	267	1,006	26.58	21.0
1,501– 2,500	16.4	257	1,748	14.73	12.8
2,501– 4,000	10.4	286	2,957	9.67	8.8
4,001– 6,000	4.9	316	4,576	6.91	6.5
6,001–10,000	2.4	386	7,074	5.44	5.2
10,001–20,000	1.1	454	12,668	3.58	3.6
Over 20,000	0.4	562	36,038	1.56	1.5
All	100.0	250	1,602	15.61	13.5

* U. S. Dept. Agr. Misc. Pub. 266, p. 68, and the Fifteenth Census of the United States, 1939, *Agriculture*, Vol. III, Part 1. Only 93.5 per cent of the farms reported the value of products used. It was assumed that the proportion of farms not reporting use of products was distributed evenly throughout the various groups of farms as classified above.

† Valued at sale price.

There is a general tendency, however, among all Negro families and families of white sharecroppers for the percentage of the total food supply coming from the farm to rise with increase in income. The income of these groups is relatively low.

An increase in value of family-furnished food, with rise in income, may be the result of a change in nature or quantity of food. One study of families in Knott County, Kentucky reports: [31]

> The increase in value [of farm-furnished foods] is associated with the home production of larger quantities of all types of food. Relatively more emphasis is given to raising grain products for home use by families in the lower economic groups than in the higher. Otherwise the general character of the home-produced share of the food supply was much the same regardless of the level of living.

Those with a current annual value of living of less than $600 had family-furnished food valued at $225. Of this amount, 10 per cent comprised grain products. Those with a value of living over $1,200 had farm-furnished food valued at $609, of which 6 per cent was grain products.

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[31] F. M. Williams *et al.*, *Family Living in Knott County, Kentucky*, U. S. Dept. Agr. Tech. Bul. 576, 1937, p. 33.

Information on the quantity of separate family-furnished foods by income levels is available for many groups. There appears to be a tendency as income rises to increase the quantity of poultry from the farm more than the quantity of eggs, and of pork somewhat more rapidly than poultry.

The share of different foods, in the total value of family-furnished food, varies by income levels within a rather narrow range. Well-defined differences are apparent in some states, but considerable variation exists among states.[32] For example, for a group of Iowa families, with a rise in income, fruits and vegetables other than potatoes constitute a larger percentage of total value of farm-furnished food. Apart from some irregularity, the reverse is true for studies of Michigan families. For Iowa families the importance of milk and cream and eggs and poultry, in family-furnished food, declines somewhat with rise in income. In Michigan the importance of milk and cream shows no such tendency.

Family Size and Type and Family-Furnished Food

The larger the family the higher is the value of family-furnished food. At any given income level, however, the larger the family the lower is the value of such food per expenditure unit.[33] (See Table 21.) An increase in family size with no increase in income is equivalent to a lowering of income, family size remaining the same.

A brief exploration by income levels, for a given family type, failed to reveal any difference in relative volume of various farm-furnished foods. Rise of income appears to have much the same effect on milk as on pork furnished for both families of two adults and those with children under 16 years.

Nearness to City and Farm-Furnished Food

Proximity of the city in relation to farm-furnished food has received, as yet, limited attention. One study made in Maryland reports the provision for themselves of vegetables for canning, fresh fruits and vegetables for canning, and dairy products as considerably less for the suburban than for the distinctly "rural" group.[34] Proximity to cities may be a factor of considerable importance because it provides a convenient market for certain types of farm products, causing many farms to specialize in their commer-

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[32] See reports of the Consumer Purchases Study.

[33] For discussion of food-expenditure unit see Chapter 14.

[34] Md. Agr. Exp. Sta. Bul. 357, 1933.

Table 21. Value of Farm-Furnished Food per Meal per Food-Expenditure Unit, and Families Classified by Income and Family Type, Selected States *

Income Level and Family Type	North Dakota	Kansas	South Dakota, Montana, Colorado	Washington	Oregon	California	
						Central	Southern
	cents	*cents*	*cents*	*cents*	*cents*	*cents*	*cents*
$500–$999							
Family type 1	7.84	7.68	7.74	5.50	8.31	4.21	2.65
Family types 2 and 3	6.33	7.25	6.40	4.85	7.70	3.62	2.32
" " 4 and 5	6.18	5.75	5.51	4.16	6.52	4.94	1.78
" " 6 and 7	5.82	4.94	4.93	3.45	5.98	3.00	2.25
$1,000–$1,499							
Family type 1	7.92	8.17	7.92	6.16	8.89	4.05	2.24
Family types 2 and 3	6.59	7.17	7.50	2.70	8.22	3.69	2.03
" " 4 and 5	6.38	6.77	6.22	4.25	7.87	3.70	2.18
" " 6 and 7	5.92	6.19	6.70	3.41	6.85	3.12	3.50
$1,500–$1,999							
Family type 1	6.00	8.14	7.92	6.48	8.64	4.30	2.58
Family types 2 and 3	7.11	7.20	8.64	4.90	7.77	2.75	2.93
" " 4 and 5	7.28	6.35	6.85	4.79	7.90	2.80	2.34
" " 6 and 7	6.50	5.89	6.00	4.53	7.20	4.00	1.70
$2,000–$2,999							
Family type 1	†	8.17	8.30	6.12	8.39	4.12	2.02
Family types 2 and 3	6.50	8.18	7.62	5.06	9.00	5.00	2.40
" " 4 and 5	7.96	7.00	7.48	5.08	8.83	4.21	1.99
" " 6 and 7	10.75	6.56	5.27	4.62	7.07	2.75	3.40

* U. S. Dept. Agr. Misc. Pub. 356, pp. 82 and 204.

† Fewer than 3 cases.

cial production. It readily makes available supplies for family use. Bread, grocery, and milk routes in some areas deliver perishable products regularly in those rural communities close to cities and large towns.

Nearby Commercial Specialization

Nearby commercial production in some cases appears to have the effect of reducing the importance of family production. For example, many families in communities having canneries report that they have given up raising their own vegetables for canning since seconds can be secured from the nearby factories at very low cost. Local truck gardening is likely to have the same effect, neighboring families getting the fully mature produce at low prices. The development of local creameries has played an important part in shifting butter production out of the home—both that moving into the market and that consumed by the farm family.

7

Family-Furnished Food: Part-Time Farm[1] and Village Families

PERSONS engaged in part-time farming fall into several categories:

1. Those looking upon themselves as farm operators who seek some work off the farm in order to supplement their farm income. In many cases they are living on subsistence farms or on submarginal land.
2. Farm laborers living on small acreages, who constitute an important group in some regions.
3. Those who do not look upon themselves as farmers, any farming carried on being considered merely a supplementary occupation. They may have turned to part-time farming in order to supplement their income through provision of family-furnished foods, to obtain low-cost housing or to make possible the pleasure of rural life, or for other reasons.
4. Those with no occupation apart from part-time farming. Retired workers both from farms and from non-farm occupations make up the bulk of this group. They live on income from property, savings, or relief, supplemented with living secured from the farm.

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[1] In preparing this discussion of part-time farming the following studies have been used. Calif. Agr. Exp. Sta. Bul. 581, 1934; Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, 1936; Del. Agr. Exp. Sta. Bul. 199, 1936; Ind. Agr. Exp. Sta. Bul. 388, 1934, Bul. 409, 1936, and Bul. 410, 1936; Ia. Agr. Exp. Sta. Bul. 340, 1935; Ky. Agr. Exp. Sta. Bul. 358, 1935, and Bul. 365, 1936; Md. Agr. Exp. Sta. Bul. 357, 1933; Ohio Agr. Exp. Sta. Bul. 547, 1935; Ore. Agr. Exp. Sta. Bul. 340, 1935; Pa. Agr. Exp. Sta. Bul. 361, 1938; Storrs (Conn.) Agr. Exp. Sta. Bul. 201, 1935; Bul. 204, 1935; Bul. 212, 1936; Bul. 226, 1938; Bul. 230, 1939; U. S. Dept. Agr. Misc. Pub. 405, 1941; Wash. Agr. Exp. Sta. Bul. 316, 1935, Bul. 380, 1939; Works Progress Adm., Div. Soc. Res., Mono. IX, 1937.

A detailed bibliography on part-time farming has been prepared by the U. S. Bur. Agr. Econ. (See Agr. Econ. Biblio. 77, 1939.) Excluded in this bibliography are: marginal or subsistence farming by full-time farmers; the Little Landers' Movement in California; farm laborer's allotments; garden cities and the greenbelt communities; wartime gardens for increased production. For special references to small holdings and subsistence homesteads, see L. O. Bercaw *et al.*, *Bibliography on Land Settlement,* U. S. Dept. Agr. Misc. Pub. 172, 1934; and L. A. Salter, Jr., and L. F. Diehl, "Part-Time Farming Research," *J. Farm Econ.* Vol. 22, August, 1940, 581–600.

Part-time farming, by urban workers in particular, has come in for much attention in recent years. It has been urged by some industrial leaders and by some government programs as a means of improving living conditions, increasing security of income, and removing families from relief rolls. Proposals made for increasing part-time farming fall in three major groups:[2]

> Provision of garden plots for industrial workers in order that produce from these plots may supplement their income from industrial employment and aid in tiding them over seasons of unemployment.
>
> Establishment of new communities of families, each family provided with a small acreage on which to raise a considerable portion of its food, with the expectation that industries will locate in such communities and provide supplementary cash income.
>
> Settlement of families on small farms near communities in which industrial settlements already exist, where they may produce a considerable portion of their food and may also obtain some employment in the industries.

Since part-time farming is urged mainly in the expectation that a major contribution to family income can be made through family-furnished food, it is important to consider: (1) present importance of part-time farming and changes occurring; (2) people engaged in part-time farming; (3) type of food provided for family consumption; (4) value of such food, its importance to total value of living, its relation to food expenditure, and factors affecting it.

Attention will be concentrated mainly on part-time farming by those with non-farm employment.

Part-Time Farming: Present Status and Trends

Part-time farming by non-farmers is not a new phenomenon. In colonial days industry and agriculture were combined. This condition has continued, to some extent, to the present. With the widespread use of electricity much has been said of the decentralization of industry, although little evidence of its occurrence is yet apparent. However, the automobile and hard-surfaced roads make it feasible for urban and farm workers alike to live some distance from work. Improvements in equipment, suitable for small-scale farming and the shorter working day in industrial employment, serve further to promote part-time farming by industrial workers. The depression of the thirties, bringing unemployment to millions of workers and lowering the income of many others, has also been a factor.[3]

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[2] W. P. Administration, *Part-Time Farming in the Southeast*, Research Mono. IX, 1937, p. xviii.

The censuses of agriculture and population, as well as special studies,[4] throw light on status and on changes in part-time farming. Part-time farms were reported for the first time in the census of 1930. At that time 5.4 per cent of all farms were classed as part time, whereas by 1935 the number had risen to 8.4 per cent.[5]

The New England, Middle Atlantic, and Pacific regions rank first in proportion of farms classed as part time; and the West Central region comes last. In 1930, 15 per cent of the farms in New England and less than 3 per cent in the West North and West South Central regions were part time. In discussing regional differences in part-time farming, Brunner and Kolb [6] point out:

> In Ohio only 8 percent of the heads of farm families were . . . supplementing their income (from non-agricultural employment) in the most rural of a group of areas studied, while in the most industrialized areas 27 percent were employed in part-time occupations. In a central New York village 17.8 percent of the open-country males were employed in other than agricultural pursuits. In the Middle West, on the other hand, except near fairly large cities and along the main highways, little of this tendency was discovered. . . .

The census of agriculture gives, however, an incomplete picture of farms commonly looked upon as part time, since many are less than three acres and raise products valued at less than $250. The W.P.A. Research

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[3] A study made in 1933, including four selected rural areas in Northwestern Indiana near industrial cities, reports 578 "non-farming" families had come into the area after Jan. 1, 1929. The non-farming population produced an average of $100 to $125 worth of food per year. Ind. Agr. Exp. Sta. Bul. 388, 1934, p. 2. A marked expansion of part-time farming during the depression in the vicinity of Klamath Falls in Oregon is reported following a study made in 1934: 88 per cent of the part-time farm families had been operating their rural holdings less than six years. Ore. Agr. Exp. Sta. Bul. 340, p. 10.

[4] The value of these studies is greatly restricted by a failure to use uniforn definitions and in some cases failure even to state how part-time farms were defined. In some studies, the only requirement for inclusion in the part-time farming group was that farming activity less than full-time be carried on; in others, mere residence in a rural community made a family eligible for inclusion.

[5] A farm, as defined in the censuses of both 1930 and 1935, excluded any tract of land of less than three acres, unless its agricultural products in 1929 were valued at $250 or more. In 1930 a part-time farm was one where the operator worked more than 150 days off the farm, provided the value of the farm products did not exceed $750. In 1935 this latter limitation was not applied. The increase by nearly 70 per cent in part-time farms is thus partly a matter of definition. U. S. Dept. Agr. Misc. Pub. 266, 1937, p. 39.

[6] E. de S. Brunner and J. H. Kolb, *Rural Social Trends*, 1933, pp. 49–50.

Monograph, *Part-Time Farming in the Southeast,*[7] reports, for example, that 61 per cent of part-time farms included had less than three acres of cropland, and 55 per cent had less than three acres in their entire farms. The monograph states: [7]

> It will be apparent from a consideration of the amount of products produced on the average part-time farm that not many of those having less than three acres would have produced $250 worth of farm products.

A study was made in 1931 of part-time farms in 43 "towns" in Connecticut, a part-time farm being defined as one "of three acres or more whose total farm production represented substantially less than the full-time employment throughout the year for one man." [8] Whereas for these towns the census has reported only 969 part-time and subsistence farms for this area, this study reported 4,049. On the basis of data secured, it was estimated that 60 per cent of the farms in Connecticut were part-time farms, whereas the census reports only 25 per cent.[9]

The increase in number of small farms is at times taken as a measure of the increase in part-time farming. Changes as reported by the census are as follows:

Size of Farm in Acres	*Percentage Increase in Number of Farms*	
	1920 to 1930	*1930 to 1940*
Under 3 *	111	—16
3 to 9	18	15
10 to 19	10	0
All	—3	—3

* It is generally conceded that census data for farms of this size are rather unreliable. Many farms are overlooked by the enumerators.

The increase in number of small farms occurred largely in areas where part-time farming, as defined by the census, is high. The number of farms in Connecticut, for example, having from 3 to 20 acres practically doubled from 1930 to 1940. In the latter year they constituted 31 per cent of the farms in the state. In Iowa, on the other hand, the number of these farms increased by 12 per cent from 1930 to 1940 and in 1940 constituted only 8 per cent of all farms.

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[7] *Op. cit.*, pp. xxi–xxii.

[8] Storrs (Conn.) Agr. Exp. Sta. Bul. 201, p. 6.

[9] *Ibid.*, p. 13. This study in Connecticut gives no basis for gauging the extent to which the census data for other states falls short of measuring part-time farming. Some other measures have been made. For example, the 1930 census reports 5,588 part-time farms in Iowa. Wakeley estimates that there are in Iowa 20,000 families who produce agricultural products for use or sale and have employment other than farming as the usual source of income. See Ia. Agr. Exp. Sta. Bul. 340, 1935, p. 22.

The expansion of part-time farming also can be measured by the increase in rural non-farm population, especially that outside incorporated towns and villages. From 1930 to 1940 total population increased 7.2 per cent and rural farm population remained approximately the same, whereas rural non-farm population outside incorporated towns and villages increased 23 per cent.

The shift of urban families to rural areas, where gardening and other types of food production are possible, varies greatly from one region to another. Hood reports, for example, that the population of incorporated places in New York with less than 2,500 people increased by less than 5 per cent during the 10-year period ending in 1930, and the rural-farm population declined; whereas the rural non-farm population, excluding incorporated villages, increased by 50 per cent. "The most marked growth in the rural non-farm population has taken place near the large industrial centers."[10]

The percentage increase from 1920 to 1930 in rural non-farm population outside incorporated places for the states in which the increase was greatest is given below:

State	*Percentage Increase from 1920 to 1930 in the Non-Farm Population Living Outside Incorporated Towns and Cities*
Rhode Island	321.9
Massachusetts	140.7
Delaware	91.4
California	83.0
South Carolina	79.5
Oregon	78.3
Michigan	59.1

It must be remembered, however, that some people moving from cities to rural communities do no farming whatsoever. For example, householders who moved to the "town" of Norwich, Connecticut, have been classified according to date of their arrival. There is apparent a decreasing tendency on the part of those moving to this rural community to carry on farming activities. Of those living in the open country, 83 per cent coming before 1915 and only 58 per cent of those coming during 1930–1934 carried on some farming activity.[11] For those settling in the village the same tendency is apparent.

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[10] K. Hood, *An Economic Study of Part-Time Farming in the Elmira and Albany Regions of New York, 1932 and 1933,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, p. 9.

[11] Storrs (Conn.) Agr. Exp. Sta. Bul. 226, p. 71.

Who Are Part-Time Farmers?

The personnel of urban families having homes on farms differs greatly in some ways from one community to another. Well-to-do or wealthy business and professional families may predominate in some communities. Gentlemen farming of large estates may then be conspicuous. Many of these estates will be classed in the census as farms with hired managers. In some districts where family incomes are at a comfort level, hobby or recreational farming may be important.[12] In communities fringing industrial cities the percentage of skilled and unskilled laborers is likely to be high. Lack of uniformity of definition of part-time farming and of method of selecting families from whom information has been secured interferes, however, with a precise description of families on part-time farms and with comparisons among areas. Such studies as these indicate the following conditions:

1. "Laborers" are important on part-time farms. A study of part-time farms near Columbus, Ohio, reports 11 per cent of the heads of households were professional and business men, 16 per cent clerks and sales people, 31 per cent skilled laborers, and 35 per cent unskilled laborers.[13] A study made in Washington reports the proportion of skilled workers and foremen among part-time farmers to be in excess of their importance in the total state population. The same was true of semi-skilled workers which were next in importance. There were relatively few proprietors or clerks in the community.[14]

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[12] This appears to apply in Wilton, Connecticut: "The analysis of farming activities has revealed about half of the households in Wilton carry on at least a little farming. Aside from a few good fruit farms, however, most of it tends to be . . . recreational or 'hobby' farming. . . . Suburban influences are clearly reflected in the types of farming now being carried on. Several farms have now taken up dog breeding and the keeping of riding horses. . . ." Storrs (Conn.) Agr. Exp. Sta. Bul. 230, 1939, p. 74.

[13] F. L. Morrison and J. H. Sitterley, *Rural Homes of Non-Agricultural Workers*, Ohio Agr. Exp. Sta. Bul. 547, 1935, p. 7. Part-time farmers in this case included those producing any part of their living from the land from the time they took up residence in a rural or semi-rural area, those who considered some work other than farming as their major occupation, unless the farm enterprise took the full-time year-round effort of one worker, in which event the farm was excluded. Retired people and those living on pensions were, however, not excluded. *Ibid.*, p. 4.

[14] C. F. Reuss, *Social Characteristics of Part-Time Farmers in Washington*, Wash. Agr. Exp. Sta. Bul. 380, 1939, p. 12. In this study a part-time farm was defined as one "which contributes to the family living and whose operator normally derives a substantial part of his total income from an occupation other than farming or from some non-occupational source." (p. 7.)

A Kentucky study, including 329 part-time farmers in 4 areas, reports only 25 per cent of the part-time farmers in the clerical, professional, and business groups. See Ky. Agr. Exp. Sta. Bul. 358.

2. Families of proprietors and professional workers on moving to rural areas are less likely to carry on farming than those of laborers. For example, a Connecticut study, securing data from all families in a town, reports professional families to only a limited extent carrying on farming apart from gardening;[15] in addition the proportion having a garden is below that of any other occupational group. Farm laborers in this community rank highest in the proportion carrying on some farming; unskilled workers are second and semi-skilled workers third. (See Table 22.) In percentage having gardens, the groups rank in much the same order.

Table 22. Householders, Other Than Farmers, Carrying on Some Farming, Classified by Occupational Groups, Town of Windsor, Connecticut, 1934 *

Occupational Group	Total Number of Householders in Town	Percentage Carrying on Some Farming †	Percentage Having Gardens		
			All	Native born	Foreign born
All	1,632	17.7	33.3	35.5	‡
Professional managerial-business	134	2.4	29.5	25.8	‡
Other "White collar"	420	7.6	35.9	34.9	41.7
Skilled	452	16.2	49.9	45.6	56.7
Semi-skilled	127	18.9	56.7	53.7	65.6
Unskilled	168	29.8	70.8	59.2	80.0
Farm laborers	144	50.0	82.3	78.0	85.2
Others	187	18.7	42.4	36.0	59.4

* N. L. Whetten and E. C. Devereux, Jr., *Studies in Suburbanization in Connecticut: 1 Windsor: A Highly Developed Agricultural Area*, Storrs (Conn.) Agr. Exp. Sta. Bul. 212, 1936, pp. 69 and 77. See also Storrs (Conn.) Agr. Exp. Sta. Bul. 226, 1938, pp. 67 and 75.

† Farming, as defined, does not include units having a small garden only.

‡ Less than ten cases in the class.

3. Among part-time farm families those of larger-than-average size are conspicuous. Furthermore, size of family appears to affect farming activity. For example, among the families moving to a Connecticut rural community during the period 1930 to 1934, gardens were cultivated by 32 per cent of those with three members, 58 per cent of those with 6 members, and 75 per cent of those with eight or more members in their household.[16] The part-time farm households surveyed in the Southeast averaged

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[15] Part-time farms in this study were defined as those having three or more acres and using less than 150 man work units per year.

[16] Storrs (Conn.) Agr. Exp. Sta. Bul. 212, p. 79.

5.2 members, while those of non-farming industrial families in the same communities averaged 4.2 members.[17]

4. The young-family stage in some communities seems not to be conducive to gardening and even less to farming. For example, in the industrial part-time farming area of Norwich, Connecticut, only 11 per cent of the childless families were carrying on any farming, and 32 per cent of those whose oldest child was under five years, 41 per cent of those whose oldest child was between 10 and 14 years, and 55 per cent of those whose oldest child was 20 years or over.[18] A study in Windsor, Connecticut—already referred to—indicated much the same relationship between the age of the oldest child and participation in gardening. However, among a group of Oregon families the percentage of part-time farms reporting potatoes and other food from the garden is only slightly higher for the older than for the younger families.[19]

5. Heads of households in part-time farming in some communities are above average in age. Among industrial families in the Southeast those in part-time farming averaged 41 years in contrast with 36 years among the non-farming group.[20] Among part-time farmers reporting in Pennsylvania, however, the proportion of adults 55 years of age and over among those in part-time farming was below that of both the rural-farm and urban populations of the counties containing the areas. The definition of part-time farming in this study excluded any retired workers living on small acreages.[21]

6. In some part-time farming communities previous farm experience appears to be an important factor determining if part-time farming is undertaken: In the Southeast area heads of households, engaged in industrial work and carrying on part-time farming, had, on the average, 12 years of "adult" farm experience in contrast with four years' experience of non-farming groups in the same communities.[22]

[17] W.P.A. Research Mono., Vol. IX, *op. cit.*, p. 3.

[18] Storrs (Conn.) Agr. Exp. Sta. Bul. 226, 1938, p. 74. One study including 104 Negro families reports a preponderance of families with young children among those in part-time farming. See Ky. Exp. Sta. Bul. 365, p. 121.

[19] See U. S. Dept. Agr. Misc. Pub. 405, p. 299.

[20] *Op. cit.*, p. 2. This group did not include retired families.

[21] "The essential requirements for classification as part-time farmer were: (1) at least three-fourths of an acre of land had to be under cultivation or $100 of produce raised; (2) 50 days of labor had to be spent off the place or $150 of income derived from non-agricultural sources." Pa. Agr. Exp. Sta. Bul. 361, p. 1.

[22] *Op. cit.*, p. 4. This referred to years of farm experience since head of household was 16 years of age.

Type of Production Carried On

Many factors affect the production carried on by part-time farmers, for example, money income, size or composition of the family, interest of family members in gardening and other farming activities, time of adult members free from employment off the farm, size of acreage, climate, and fertility of the soil. From scattered studies it would seem that gardening is the most common type of production carried on—with vegetables more important than potatoes and fruit. Poultry raising comes next; then dairying and finally hog-raising. (See Table 23.)

One study reports that the recent depression tended to increase the proportion of part-time farms having poultry, cows, and hogs. For exam-

Table 23. Percentage of Families Producing Specified Types of Food for Home Use, by Family Type and Income, 571 Part-Time Farms in Oregon, 1935–1936 *

(Native White, Non-Relief)

Income and Family Type	Percentage Reporting Provision of					
	Milk	Eggs	Pork	Potatoes	Other food from garden	Fruit
All families	77.7	83.0	26.1	69.5	90.9	81.9
$ 500–$ 999	74.4	85.4	24.4	69.5	91.5	73.2
1,000– 1,499	83.1	78.0	28.2	70.6	92.7	80.8
1,500– 1,999	74.8	84.9	25.2	71.7	89.9	84.3
2,000– 2,999	79.0	84.9	28.6	68.9	91.6	82.4
3,000 and over	73.3	90.0	16.7	53.3	86.7	96.7
Type 1	55.7	77.9	19.8	66.4	88.5	82.4
Types 2 and 3	81.7	84.3	29.4	68.6	90.8	79.1
Types 4 and 5	82.8	85.2	25.8	72.2	92.8	84.7
$ 500–$ 999	80.0	90.0	20.0	55.0	90.0	75.0
1,000– 1,499	84.7	76.3	27.1	76.3	93.2	86.4
1,500– 1,999	83.6	88.5	29.5	80.3	93.4	85.2
2,000– 2,999	81.5	87.0	24.1	72.2	92.6	81.5
3,000 and over	80.0	93.3	20.0	46.7	93.3	100.0
Types 6 and 7	94.1	82.4	33.8	69.1	91.2	76.5

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* U. S. Dept. Agr. Misc. Pub. 405, p. 299. Much the same pattern of production is reported by other farm families.

ple, of 573 part-time farms in the Southeast operating in both 1929 and 1934, 43 per cent had cows in 1929 and 53 per cent in 1934, and 41 per cent had hogs in 1929 and 48 per cent in 1934.[23]

The size of farm influences the type of production carried on. As farms get larger, a larger proportion of families reports fruits and vegetables from the garden being canned as well as eaten fresh, and the proportion reporting dairy and livestock products from the farm increases sharply. A rise also occurs in the average value of farm-furnished food and in the percentage of the family-food supply which is home produced. Among a New York group, farms with 1 cow averaged 6 crop-acres, those with none had 1 crop-acre; farms with 1 to 34 chickens averaged 2 crop-acres, and those with 35 to 105 chickens had 6 crop-acres.[24]

In one study, size of farm enterprise has also been measured in work units. As the work units increase the value of fruit increases a little and that of vegetables somewhat more. A marked increase occurs in the value of home-furnished poultry and dairy products. This study states: "On the average, dairy and poultry products are the most valuable contributions made by part-time farms to family income and sustenance." [25]

The large families more frequently than the small have livestock on their part-time farms. For example, in Ohio out of 86 families of five persons or more, 51 per cent kept a cow; whereas for 116 families of four persons or less, the proportion was only 22 per cent.[26] In Oregon, the percentage of families with family-furnished milk increased with age and number of children.

Value of Family-Furnished Food

Part-time farms raise products for sale as well as for family use. The latter are, however, the more important. Investigators of part-time farming in Connecticut report, for example: [27]

> Although comprising nearly two-thirds of all farmers and although utilizing 35 per cent of all the farm land in the state, part-time farmers sell less than 3 per cent of all products marketed.

Many studies made during the thirties report value of family-furnished food in contrast with net money income and expenditures for food.[28] For the groups studied, family-furnished food, as reported, ranges all the way from $111 per farm in the Albany region of New York to $492 per family in Maryland. Investigators differ widely about the method of imputing value and the care taken to ensure accuracy in reporting the value of products furnished. The majority of studies indicates that home-furnished food is an important part of family living.

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[23] W.P.A. Research Mono., Vol. IX, *op. cit.*, p. 7.

[24] Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, pp. 44–5. See also Ohio Agr. Exp. Sta. Bul. 547, p. 20, and Md. Agr. Exp. Sta. Bul. 357, p. 239.

[25] Storrs (Conn.) Agr. Exp. Sta. Bul. 201, p. 4.

[26] Ohio Agr. Exp. Sta., *op. cit.*, p. 21.

[27] Storrs (Conn.) Agr. Exp. Sta. Bul. 201, p. 4.

[28] For list of studies see p. 103 above.

In a few studies certain factors affecting the amount and importance of family-furnished foods have been investigated. Scattered studies indicate the following:

1. As total family income moves from low to moderate levels, there is an increase in the value of family-furnished food. (See Table 24.) Salter and Diehl [29] point out that "data so far available deny the belief that the more poorly paid workers engage in the greater amount of agriculture." They believe that "present evidence is not adequate as to whether part-time farmers will maintain or enlarge their farming operations enterprises as the amount of their outside income decreases."

*Table 24. Family-Furnished Food of 381 Part-Time White Farm Families; 5 Counties in Oregon, 1935–1936 **

Family Income	Value of Living	Expenditures for Food	Family-Furnished Food	Percentage Family-Furnished Food Is of	
				Value of living	Total food
$ 500–$ 749	$ 996	$202	$175	17.6	46.4
750– 999	1,013	207	215	21.2	50.9
1,000– 1,249	1,158	264	251	21.7	48.7
1,250– 1,499	1,299	292	267	20.6	47.8
1,500– 1,749	1,469	346	262	17.8	43.1
1,750– 1,999	1,648	355	282	17.1	44.3
2,000– 2,499	1,832	392	273	14.9	41.1
2,500– 2,999	2,263	432	279	12.3	39.2
3,000– 3,999	2,379	578	255	9.5	30.6

* U. S. Dept. Agr. Misc. Pub. 405; p. 127.

2. However, the higher the income the smaller is the share of the total food supply coming directly from the farm. In this respect full-time and part-time farms appear to differ.

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[29] "Part-time Farming Research," *J. Farm Econ.*, Vol. 22, August, 1940, pp. 581–600.

3. In New York family-furnished food, among a group of part-time farm families, constituted 13.0 per cent of the food supply of all farms. For those having an income off the farm of less than $200, it was 17 per cent; and for those having an income off the farm of $800 or more the proportion was 7 per cent.[30] Ohio families engaged in part-time farming and having an income, apart from the sale of farm products, of less than $600, produced food for themselves that was valued at $126. This was 41 per cent of the total food used. Where the income was $1,800 or more, family-furnished food was valued at $172. This was 35 per cent of the total food consumed.[31]

4. The larger the average size of family the larger is the proportion of the total food supply produced. For New York families mentioned above, the proportion of the total food furnished by the farm was 11 per cent when the size of family was less than 2.9 units and 17 per cent when it was 6 or more adult units.[32] This relationship of size of family to food furnished is similar to that shown above for full-time farmers.

5. The larger the farm acreage the greater is the value of family-furnished food and the higher the proportion of total family food which is supplied from the farm.[33]

6. The importance of family-furnished food is much influenced by the livestock kept. (This, of course, is also related to the size of farm.) For example, in the Albany region of New York, part-time farms with no cows produced 9 per cent of the total food supply; those with 1 cow produced 41 per cent; while those with 2 cows provided 45 per cent. On farms with no chickens, family-furnished food constituted 5 per cent of total food; whereas on farms with 35 to 104 chickens, it was 29 per cent.[34] Similar findings are reported for a group of Ohio families.

7. Previous farm experience seems to be a factor not only in inducing urban workers to undertake part-time farming but also in doing more farming than otherwise. For example, among part-time farms in Ohio, operators with previous farm experience provided more family-furnished

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[30] Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, p. 61. The food in this study was valued at farm prices.

[31] Ohio Agr. Exp. Sta., *op. cit.*, p. 24. It is reported that food from the farm was valued at retail prices current in the city of Columbus, Ohio.

[32] Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, p. 61. A study in Delaware reports that "large families do not raise more products than do small families" and that "families with low incomes do not raise more products than those with larger incomes." Del. Agr. Exp. Sta. Bul. 199, 1936, p. 23. In this study data were secured from 118 families, and little quantitative data on farm produce used by families are presented.

[33] See Ohio Agr. Exp. Sta. Bul. 547, p. 20, and Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, p. 46.

[34] Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, pp. 61–3.

food than did other operators. A similar situation is indicated among the 725 part-time farmers studied in New York. It should be noted that operators, reared on farms, in this study report a lower annual income from their job off the farm than do workers reared in the city.

8. Findings of a New York study indicate that the percentage of the total food bill which is furnished by the farm decreases as the number of days that the operator is employed off the farm increases. This may be due to the fact that such employment results in a relatively high income rather than because it reduces time available for farm work. The Ohio study referred to, however, reports that those employed part time and those employed full time off the farm produced much the same amount of family-furnished food.

Home-Furnished Food of Village Families[35]

In the Consumer Purchases Study, village families in many parts of the country have reported for 1935–1936 the extent of family-furnished food. These studies indicate that

1. A wide variation exists between parts of the country in the proportion of village families producing some food, for example: 28 per cent of the families reporting in California in contrast with 59 per cent of those in Washington–Oregon, 55 per cent in North Dakota–Kansas, and 31 per cent in South Dakota–Montana–Colorado.

2. The higher the income the smaller is the percentage of families with home-furnished food.[36] When families are classified by occupational groups, the higher family income is not always accompanied by a smaller proportion of the families reporting family-furnished food.

3. Fruits and vegetables come first in frequency; then eggs and poultry.

4. The occupational category, "other," which in many instances must have a high proportion of retired workers, ranks first in the proportion reporting the various types of food production; wage-earners rank second. Little difference is apparent between the business-professional and the

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[35] Village families, producing for their own consumption, have been included, to some extent, in the above discussion on part-time farming. Village families, however, have a much smaller plot of land than those commonly reported as part-time farmers. Some studies published by agricultural experiment stations compare the home-furnished food of families on farms and in neighboring towns and villages. See, for example, Ga. Agr. Exp. Sta. Bul. 180, 1933; Ohio Agr. Exp. Sta. Bimonthly Bul. 171, 1934, pp. 207–10; and S. D. Agr. Exp. Sta. Bul. 320, 1938.

[36] See U. S. Dept. Agr. Misc. Pub. 339 and 345. In these reports this tendency does not occur with every group. It is however marked when income levels within each analysis unit are ranked and the ranks for each income level averaged.

Table 25. Percentage of Village Families Reporting Some Food Production and the Average Value of Such Food, by Region, Occupation, and Income, 1935–1936 *

Income	Wage-Earner			Clerical			Business–Professional		
	Per cent reporting food	Average value: All	Average value: Those reporting	Per cent reporting food	Average value: All	Average value: Those reporting	Per cent reporting food	Average value: All	Average value: Those reporting
California									
All	29	$13	$43	26	$11	$42	20	$11	$55
$ 0–$1,499	31	14	45	24	7	29	21	9	43
1,500 and over	27	11	42	28	13	49	20	12	59
Washington–Oregon									
All	65	40	62	51	21	41	50	22	44
$ 0–$1,499	67	36	54	56	22	39	59	24	40
1,500 and over	61	52	86	47	19	41	45	21	47
South Dakota–Montana–Colorado									
All	33	21	64	28	13	47	29	16	55
$ 0–$1,499	31	14	45	36	17	46	36	15	43
1,500 and over	37	41	110	20	10	50	26	16	60
North Dakota–Kansas									
All	57	24	42	58	20	35	53	18	34
$ 0–$1,499	57	22	38	61	18	29	55	19	34
1,500 and over	56	28	50	53	24	46	50	18	35

* U. S. Dept. Agr. Misc. Pub. 339, pp. 292–3; and Pub. 345, pp. 236–7. There is no income breakdown for "other" occupations.

clerical groups. When the last three occupational groups are ranked in descending order, for four sections of the country, according to the percentage reporting family-furnished food, the average rank for wage-earners is 1.25, for the clerical group 2.00, and for the business and professional group 2.75. (See Table 26.) Although the business and professional group less frequently than the clerical group reports family-furnished food, the average value of such food for those reporting is relatively high for the business and professional group. Within all occupational groups it is generally true that those with high incomes less frequently produce a part of their own food supply than those with low incomes. The difference is, however, not great.

5. Large families more frequently than small families report some family-furnished food. (See Table 26.)

Table 26. Average Rankings of Village Families in Four Sections of the Country, According to Percentage Reporting Food Production and Average Value of Such Food *

(The lower the numerical rank the more important is family-furnished food.)

Items	Ranking on		
	Percentage reporting food production	Average value of family-furnished food	
		All	Those reporting
Occupation (all incomes)†			
Wage-earners	1.25	1.00	1.25
Clerical	2.00	2.63	2.75
Business and professional	2.75	2.37	2.00
Type of family (all incomes)			
1 (2.02)‡	3.1	3.63	4.00
2 and 3 (3.46)	3.9	3.38	3.00
4 and 5 (4.10)	1.4	2.00	1.88
6 and 7 (5.96)	1.6	1.00	1.13
Type of family (incomes $0–$1,499)			
1	2.75	3.50	3.75
2 and 3	4.00	3.50	3.00
4 and 5	1.13	1.50	2.25
6 and 7	2.13	1.50	1.00
Type of family (incomes $1,500 and over)			
1	3.75	3.75	3.75
2 and 3	3.00	3.25	3.25
4 and 5	1.75	2.00	1.75
6 and 7	1.50	1.00	1.25

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* U. S. Dept. Agr. Misc. Pub. 339 and 345. Included are communities in (1) California, (2) Washington and Oregon, (3) South Dakota, Montana, and Colorado, and (4) North Dakota and Kansas.

† Much the same ranking occurs when occupations are classified by family income.

‡ Average family size.

Family-Furnished Foods of Urban Families

In the Study of Consumer Purchases, family-furnished food of urban families was not considered of sufficient importance to report separately. Some urban families have small gardens. In many cities ordinances forbid the keeping of livestock. In some cities, especially industrial cities, where numerous families were unemployed, there was an attempt during the depression to increase the number of families providing family-furnished foods. Gardening units, established as a result, have been studied only to a very limited extent. For example, the following report is made of the emergency relief gardens in the city of Baltimore, Maryland:[37]

> From 1,000 garden lots, comprising about 75 acres, a total of $15,000 worth of vegetables at open market retail values had been obtained up to September 15. By the end of the year these gardens have produced about $25,000, or $33 per acre. . . .

Some of the factors making for success in such gardening are suggested by a report of Zimmerman[38] on gardening among relief families in May, 1933, in towns in Massachusetts:

> It appears that the sociological factors militating against sustenance gardening increase in direct proportion to the industrialization of the town. The more industrialized and urbanized the town, the less does the town aid or encourage sustenance gardening and canning, the less are the unemployed trained for that sort of work, and the less do the unemployed want to engage in it.

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[37] Md. Agr. Exp. Sta. Bul. 357, p. 245.

[38] C. C. Zimmerman and M. E. Frampton, *Family and Society*, 1935, pp. 164–9.

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Economy of Family-Furnished Food

An increase in family-furnished food has been especially emphasized for part-time farmers with urban employment, for full-time farmers receiving loans from the Farm Security Administration and for a large portion of farmers in the South. It is held by some that the concentration on cotton growing in the South has led to the development of a farming system which, at the present time, fails among other things to use sufficient resources in production for family use. A "Plant-to-Prosper" campaign, aimed at making many farm families more nearly self-sufficient in their food supply, has been promoted vigorously in some sections of the South. Greater family production is considered of such importance there that in many counties payments are made by the Agricultural Adjustment Administration to families having a vegetable garden.

To Increase or Decrease Family Food Production?

Decisions to increase or to decrease family-furnished foods should take into consideration many facts—some involving money and some outside the scope of monetary calculations. The outline which follows uses vegetables as an example in summarizing important facts to be weighed.

MONETARY COSTS TO BE CONTRASTED

Cost of family-furnished vegetables	*Cost of making available acceptable substitutes for family-furnished vegetables*
1. Short-run costs which include income foregone because vegetables are consumed by the family rather than sold. Allowance should be made for any cost of getting the produce ready for market, such as would not be incurred were the products used by the family. (See Chapter 5.)	1. Payment necessary to secure vegetables of identical quality from a neighbor, retail store, or some other source.
2. Long-run costs which include income foregone because vegetables for family consumption rather than some	2. Or payment necessary to secure an acceptable substitute.

other product or products were produced. Production foregone may have been other products for family use or for sale.	
3. Income foregone because labor and other resources are used for canning, preserving, and storing vegetables, so far as such costs are not incurred by the family in handling or caring for purchased vegetables.	3. To 1 and 2 must be added any costs incurred in getting the product to the home. With vegetables such costs are likely to be high because stocks must frequently be replenished.

Non-Monetary Elements To Be Contrasted

Those favoring purchase rather than production	*Those favoring production rather than purchase*
1. Fatigue and nuisance of caring for the garden in contrast with other uses of time and effort.	1. Greater satisfaction from activity required in vegetable gardening and related activities in contrast with other uses of time. Gardening in some instances may be looked upon as recreation, although this condition probably prevails more frequently among semi-urban than farm families.
2. Preference for commercial rather than home-furnished vegetables. This is likely to occur only so far as commercial vegetables make possible greater variety or fresher quality during the period when home-garden products would have to be stored. A home garden may result in the frequent appearance on the family table, at the height of season, of any one vegetable so that monotony results.	2. Preference for the quality of family-furnished vegetables, because of extra freshness possible during the growing season or the greater variety.
3. The inconvenience of having a surplus to dispose of at the height of season.	3. Convenience of having a supply on which to draw, for example, fresh vegetables at hand in the garden.
4. Deficiencies in the soil which result in local vegetables' being low in some minerals essential in diet, for example, low in iodine in the goiter belt.	4. The likelihood of a better diet because the cost of the day-to-day supply is not thought of in terms of money and because an ample supply is available.
	5. Greater sense of economic security arising from partial freedom from uncertainty of price change and unemployment, and some assurance of means of contributing to real income during old age.*

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* For discussion of subsistence farming and relief see N. L. Whetten and W. C. McKain, Jr., *Sociological Analysis of Relief and Non-Relief Families in a Rural Connecticut Town,* Storrs (Conn.) Agr. Exp. Sta. Bul. 219.

This outline of factors to be weighed indicates clearly the complexities of the situation. Systematic study bearing on some points has been made for a few groups of families.

Contribution of Family-Furnished Food to Nutrition

Family-furnished foods for the most part are classed as protective foods, which are consumed in too small quantities by American people as a whole. The diets of many farm families are also too low in many protective foods. Furthermore, there is the question of whether farm families who fail to provide these foods for themselves will buy them in adequate amounts from the money income secured from the sale of commercial products. The answer from recent studies has been an emphatic "No." Protective foods are relatively expensive in terms of hunger-satisfying qualities. If little family-furnished food is provided, families in their efforts to economize tend to have less protective foods, and hence less chance of dietary adequacy, than they would have had if there had been a garden with generous amounts of fruits and vegetables, a flock of chickens, a cow or two, or goats to provide milk the year around.

A recent report of the Consumer Purchases Study states:[1]

> Eggs, dairy products, fruit, and vegetables other than potatoes play an important role in determining dietary adequacy. They tend to provide farm families with much of the calcium, the vitamin A value, the ascorbic acid, and the riboflavin of their diet, as well as a large share of the high-quality protein. These are nutrients in which farm diets often are relatively deficient; the foods supplying them are sometimes called protective foods. The level of consumption on farms of most of these foods is closely related to programs of food production for household use. This is especially true of eggs and milk, and to a lesser degree, of succulent vegetables and fruit.

The importance of family-furnished food in achieving an adequate diet is also brought out strikingly by a study made in 1932 among farm families in the Piedmont of South Carolina. The weekly per capita value of food purchased by white families having A grade diets was only 7 per cent above that of white families having C grade diets; while the family-furnished foods of the A grade group were 44 per cent higher than of the C grade group. Among Negro families, those with A grade diets spent for food only 7 per cent more than those with C grade, but they had 90 per cent more of family-furnished foods. (See Table 27.)

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[1] U. S. Dept. Agr. Misc. Pub. 405, p. 2.

Table 27. Relation of Adequacy to Home Production: Money Value of Home-Produced Foods, Compared with Total Food Budget, S. C. Piedmont Farm Families, 1932 *

	Weekly Retail Value of Food per Capita			Percentage of Money Value of Food Produced at Home
	Total	Purchased	Home produced	
White households				
A diets	$1.670	$0.260	$1.410	84.4
B diets	1.408	0.243	1.165	82.7
C diets	1.231	0.242	0.989	80.3
Average	1.515	0.251	1.264	83.4
Negro households				
A diets	1.391	0.184	1.207	86.8
B diets	1.064	0.171	0.893	83.9
C diets	0.807	0.172	0.635	78.7
Average	1.064	0.174	0.890	83.6

* A. M. Moser, *Farm Family Diets on the South Carolina Piedmont*, S. C. Cir. 53, 1935, p. 18.

> Families whose diets were adequate owned more cows, pigs, and chickens, more fruit trees and plants, and preserved more food for winter use than did those whose diets were of lower nutritive content. Households having inadequate diets produced for their own use very much smaller quantities of milk, vegetables and fruits, and lean meat than did those having adequate diets and it was the lack of sufficient quantities of these protective foods which distinguished poor diets from good diets.[2]

After a study of South Carolina families in the lower coastal plains, Moser [3] writes:

> Because, in general, the foods usually produced by South Carolina farm families at home, if they have them to any great extent, are the ones most valuable for improving the nutritive content of their

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[2] A. M. Moser, *Food Consumption and Use of Time for Food Work among Farm Families in the South Carolina Piedmont*, S. C. Agr. Exp. Sta. Bul. 300, 1935, p. 45. See also D. Dickens, *Owner Farm Families in Poor Agricultural Areas and Cropper Farm Families in Rich Agricultural Areas*, Miss. Agr. Exp. Sta. Bul. 359, 1941.

[3] *Farm Family Diets in the Lower Coastal Plains of South Carolina*, S. C. Agr. Exp. Sta. Bul. 319, 1939, pp. 40–1.

> diets, the logic of well-planned food production programs as the immediate practical approach to better nutrition is evident. Families that bring their food-production plans into line with the "newer knowledge of nutrition" can increase the nutritive value of diets now fairly satisfactory; and families that fail to have even a fair diet because not enough is invested in it can, without much outlay of money, so increase their supply of health-protective foods that an adequate diet becomes possible. More general recognition of the possibilities of home food production is essential if progress is to be made toward improved nutrition.

Dickens[4] also has attempted to appraise the relationship of diet to family-furnished food.

> In this comparison of the income and expenditures of 23 Mississippi farm families who lived within their current income during 1938–39 with those of 23 comparable families whose expenses exceeded their income during the same period, the most important difference between the two groups was in the value of food produced for home consumption, averaging $308 and only $215 respectively. This, together with the fact that the latter group spent only $5 a year more than the former on purchased foods, shows that insufficient production of food on the farm was not made up by cash purchases, and explains in fact the greater sickness during the report year of the low-producing group. It is thought that an abundance of home-produced food is about the only guarantee the typical farm family of Mississippi has of getting a good diet and in turn better health.

Over and over again in studies of farm families one reads statements such as these:

> They (gardens) supplied not only fresh vegetables to families cultivating them but vegetables in larger quantities than would have been consumed had the families bought them.[5]
>
> The annual milk consumption was considerably higher for the group of those who kept cows than the group without cows.[6]
>
> If the farm does not provide milk, if the farm does not provide vegetables, if the farm does not provide poultry, then not many of these foods will be used.[7]

Among farm and miner families in a mountain area in Kentucky, similar in economic status and food likes, those who got rid of pellagra had gardens, cows and chickens, providing fresh milk, lean pork, eggs, and chickens.[8]

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[4] "Meeting Farm Family Expenses," *Miss. Farm Res.*, Vol. 2, No. 7 (Miss. Agr. Exp. Sta.), 1939, pp. 1 and 8.

[5] W.P.A. Research Mono., Vol. IX, p. 15.

[6] Cornell (N. Y.) Agr. Exp. Sta. Bul. 647, p. 62.

[7] D. Dickens, *A Study of Food Habits of People in Two Contrasting Areas of Mississippi*, Miss. Agr. Exp. Sta. Bul. 245, 1927, p. 29.

Value of Labor in Providing Family-Furnished Foods

A few studies have been made of returns per labor hour in part-time farming. The findings are of some interest, even though considerable variation occurs in the method of estimating costs incurred and the value of products provided.

Labor earnings per hour on part-time farms in Pennsylvania were estimated to be 12.7 cents.[9] An Ohio study reports earnings varying with the type of farm enterprise from 12.3 cents to 16.7 cents per hour and, according to size of tract operated, from 5 to 24 cents an hour.[10] A study made in the twenties in New York gives the net income per hour employed in food production by 64 village families as 60 cents, and by 11 part-time farm families as 24 cents.[11]

A group of Iowa farm women was asked what family-furnished foods were felt to be in greatest need of systematic study. "Those from the garden," was the answer. As a result, a study of value of labor used in gardening was undertaken in one county in cooperation with 30 families reported to be "good" gardeners. For a year they kept records of all money expenses for the garden, the time spent in gardening, and the quantity of the separate products secured. Fruits and vegetables were valued at prices charged at retail stores and at produce stands in the county. Value of products less money expenses incurred was divided by labor hours to give a rough measure of the returns per labor hour. It was found that family earnings in gardening activities ranged from 19 cents to $1.35 per hour, with an average return of 63 cents per hour.[12]

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[8] J. H. Kooser and M. A. Blankenhorn, "Pellagra and Public Health," *J. Am. Med. Ass.*, Vol. 116, Mar. 8, 1941, pp. 912–4.

[9] Most of this production was for family consumption. Expenses taken into consideration included operating expenses, purchase of livestock, interest on investment. See Pa. Agr. Exp. Sta. Bul. 361. The method of imputing value is not stated in the bulletin cited. Its author in a private communication states: "All fresh products consumed were valued at the cost of replacement at the time used. Produce canned from the farm was . . . valued at the replacement price of canned goods when purchased in individual units."

[10] Ohio Agr. Exp. Sta. Bul. 547, p. 260. The investigator has not made clear how returns to labor were determined.

[11] C. V. Noble, *Cost of Living in a Small Factory Town*, Cornell (N. Y.) Agr. Exp. Sta. Bul. 431, 1924, p. 48. The expenses included depreciation of capital, interest charge of 6 per cent on capital, expenses for equipment, livestock, feed, and supplies. The study does not state how the products were valued.

[12] M. E. Tiffany, unpublished manuscript.

In striking contrast with these findings of experiment station studies are those of the Borsodis[13] from their School of Living. They estimate an earning per hour in raising vegetables of 62 to 90 cents, in raising fruit of $1.80 to $2.56, in dairying of 40 to 85 cents, in providing eggs and poultry of 45 cents, and in churning butter of 65 cents. On the basis of these findings, they urge families of moderate income and living in cities to move to homesteads in neighboring rural communities and to provide for themselves the greater part of their food supply.

A recent appraisal of this project states, however:

> There has been much complaint that its [the School of Living's] researches and its bulletins on a variety of subjects relating to the homesteading idea—everything from milk production to running the home laundry—have been geared too fast to suit the homesteaders. Its researches, it is charged, are not derived from the actual experience of the homestead. Although the school does not purport to base its studies on homestead experiments, some of the homesteaders feel that such an impression has got abroad.[14]

Do Earnings Make Family Production Worth While?

This question is likely to be asked only of that production which is carried on *solely* or *mainly* for family use. If family consumption is incidental to production for sale, the use in liberal amounts of food thus made available is likely to be questioned only if the family is very poor or if the food is a luxury type, for example, cream or chickens. Each family must provide an answer to the above question in terms of existing alternatives. These will differ from time to time as well as with type of farming and personnel and ability of family members. In estimating costs incurred, it is also important to note that equal amounts of hourly labor may have quite different opportunity costs. Tasks that can be done in slack periods and are flexible as to time of month, week, and day, are likely to involve lower costs than tasks which must be performed at a fixed time. This complicates the situation and increases the need for systematic study.

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[13] The School of Living, Suffern, N. Y., *How To Economize on Vegetables,* 1939; *How To Economize on Fruit,* 1939; *How To Economize on Milk and Cream,* 1940; *How To Economize on Poultry and Eggs,* 1940; *How To Economize on Dairy Products,* 1940. In these studies the quantity of consumption is based on the findings of the recent Consumer Purchases Study. Products produced are valued at retail prices. In addition to direct cost, an allowance is made for depreciation, interest on investment, and taxes. No report is made of the number of cases investigated. The presumption is that the study was largely confined to one or more of the homesteads associated with the School of Living and probably operating at a high level of efficiency.

[14] *New York Times,* Sunday, May 5, 1940, p. 43. The School of Living was established in a community of families whose members were engaged in urban employment and who had settled on small homestead units. Most of the families anticipated furnishing a part of their own food supply.

A brief examination of the incomes of farm families, as reported by the National Resources Committee, is sufficient to justify the conclusion that the earnings reported above for the most part are equal to or greater than those in much commercial production carried on: In 1935–1936, 62 per cent of them were less than $1,000,[15] and farm people in order to secure such incomes often work very long hours. In other words, in terms of existing alternatives, it would seem probable from the data available that for many families labor used in family production usually earns at least as much as in commercial production.

Merits of family-food production, however, may go beyond earnings as such. The varied judgments commonly rendered are well summarized by Stiebeling and Coons:[16]

> Some people insist that food production for family use is not worth the effort unless the farmer is willing to accept the mere joy of work as compensation. Others are just as sure that no other acre of land and no equal amount of effort spent in commercial farming have a money-earning value equal to the money-sparing value of farm-furnished food. Few appreciate fully the contributions of farm-furnished food to the family diet—nutritive values worth more than the amount of money involved and not ordinarily purchased even when there is plenty of money. If, as studies indicate, relatively more farm families than city and village families have diets that can be rated as good, this can be attributed to the use of home produced foods. . . .

Reduction of Food Expenditures through Expansion of Family Production

Up to a certain point an increase in family-furnished food reduces expenditures for food. This fact is revealed by a comparison of expenditures of families similar in income and family type but differing in amount of family-furnished food. "The amount spent for food decreased steadily with increasing value of home-grown products until a minimum of about $150 a year was reached."[17] The investigators express the opinion that "This minimum represents the expenditures for food that the family desired, but which could not be furnished by the farm, or which, in the judgment of the families, it did not pay to produce."[18] The leveling out of food expenditures, in spite of increasing family production, occurs at all expenditure levels. (See Table 28.)

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[15] Income here included food and fuel from the farm, valued at prices at most likely place of purchase plus an imputed rental value of rent-free dwellings.

[16] H. K. Stiebeling and C. M. Coons, "Present-Day Diets in the United States," *1939 Yearbook of Agriculture*, pp. 297–300.

[17] U. S. Dept. Agr. Misc. Pub. 405, p. 15.

The greater the importance of family-furnished food in the total food supply of a family, the lower is the food expenditure and the more it is restricted to groceries. Expenditure for every type of food commonly furnished by farm families tends to fall. However, the percentage of food money going to fruits and vegetables shows little tendency to decline with rise in proportion of the food supply from the farm. This is the picture provided by a careful study made in New York State of the food bill and of the farm-furnished food of 148 farm families. (See Table 29.) A ran-

Table 28. Money Value of Food Consumed (Families Classified by Value of Home-Produced Food), for Families with One Child under 16 and No Others, at Selected Levels of Total Money Expenditures for Living, Pennsylvania–Ohio, 1935–1936 *

(White Non-Relief Families That Include a Husband and Wife, Both Native-Born)

Value of Home-produced Food	Number of Families	Average Money Value of Food per Family in a Year			Number of Families	Average Money Value of Food per Family in a Year		
		Total	Home produced	Purchased		Total	Home produced	Purchased
	Money-Expenditures Class $250–$499				*Money-Expenditures Class $500–$749*			
$ 50–$149	5	$253	$114	$139	8	$320	$113	$207
150– 249	44	326	205	121	32	388	212	176
250– 349	25	407	289	118	29	469	298	171
350 or over	18	532	413	119	15	574	422	152
	Money-Expenditures Class $750–$999				*Money-Expenditures Class $1,000 or over*			
$ 50–$149	6	$377	$114	$263	3	$423	$ 99	$324
150– 249	13	408	202	206	7	394	190	204
250– 349	17	469	291	178	9	510	296	214
350 or over	14	607	424	183	7	621	419	202

* U. S. Dept. Agr. Misc. Pub. 405, Table 6.

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[18] *Ibid.*

Table 29. Percentage of Annual Food-Bill Furnished by Farm and the Annual Expenditures for Different Types of Food Purchased: 351 Part-Time Farms in Albany Area, New York *

Percentage of Annual Food Bill Furnished by Farm	Number of Farms	Percentage of Annual Food Expenditures Going to:						Total Food Expenditure
		Meat	Milk and cream	Butter and cheese	Eggs and poultry	Fruits and vegetables	Groceries	
0–5.0	148	23.35	9.47	7.27	7.05	13.88	38.99	$454
5.1–15.0	75	23.12	10.80	8.54	4.77	12.56	40.20	398
15.1–25.0	65	22.55	11.41	9.02	2.65	12.20	42.18	377
25.1–35.0	29	22.71	8.79	8.42	3.66	10.26	46.15	273
35.1–45.0	16	24.35	5.22	4.78	1.30	7.39	56.96	230
45.1 or more	18	17.65	3.78	2.94		15.13	60.50	238
Average	351	22.90	9.67	7.63	5.09	13.49	41.22	393

* N. Y. (Cornell) Agr. Exp. Sta. Bul. 647, p. 60.

dom sample of 111 Iowa farm families indicates that in that state families who furnish the most fruit also purchase the most.[19]

The practices of families having a high percentage of total food from the farm suggest the limits, with existing food habits, of families furnishing all food.

How Much Food Should Be Furnished?

There seems to be little doubt that many families engaged in farming might well devote more labor to providing food for their own use. In the absence of extensive and systematic study the matter of how far they should go is by no means evident. Investigators of part-time farming in the Southeast felt that although part-time farming was an aid in meeting family situations it could not be given blanket endorsement.[20] In many instances they felt that education would aid many families in developing a better food-production program, for example, year-round gardens. They write:

> Assistance by existing educational agencies would be valuable in improving some of the present farming practices, and with this aid part-time farms could be made more consistent producers of food and of a more varied diet.[21]

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[19] M. E. Tiffany, unpublished manuscript.
[20] *Ibid.*, p. xxxvi.
[21] *Ibid.*, p. xxxvii.

> The average southern gardener is notoriously unfamiliar with a variety of winter vegetables.[22]

It may be of paramount importance that the prospective home orchardist keep in mind the main or true object of the home orchard; namely, to supply enough fruit for the family. Too often more trees are planted than are needed for this purpose, and as a result, the work of caring for them is a burden or they are neglected and the orchard project becomes a failure.[23] Family consumption in this event has to bear the cost of providing surplus fruit for which no suitable market exists.

Some studies of part-time farming have recommended a restriction of family production.

> Gardening and poultry raising are about all that are justified for a family of four or less; an acre or slightly more is all that is needed for this purpose.[24]

Some Conditions Favorable to Family Production

Several factors are likely to increase the advantage of production for family use, for example:

1. The development of small-scale power equipment either for basic production as in gardening or for processing, milling, churning, etc., and the increase in use of cold-storage lockers.

2. The development of methods making it possible to use regular farm machinery for produce designed for the family only, for example, a long-row garden located in the fields. Some families are experimenting with such gardens.

3. An adult education program providing up-to-date information and training in necessary skills. Education designed to increase the quantity of family-furnished food has, for example, a prominent place in the Farm Security Administration program. Each family, at the time a loan is made, draws up a plan in cooperation with trained farm and home management specialists. A garden, a flock of chickens, and a supply of milk usually are essential features. Plans are made for adequate storage and preservation, loans in many cases being made to provide a pressure cooker. Alexander, discussing the status of families aided by the F.S.A. program, reports that [25] "Figures from the nationwide survey . . . showed that the borrowers had increased their production of food for home consumption." From the period just before a loan is given until 1939 the value of total home-furnished

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[22] *Ibid.*, p. 17.

[23] T. J. Talbert, *Home Orchard Income,* Mo. Agr. Exp. Sta. Bul. 307, 1932.

[24] Ohio Agr. Exp. Sta. Bul. 547, p. 34.

[25] *1940 Yearbook of Agriculture,* pp. 876–7.

food increased from $150 to $247; milk, from 99 to 448 gallons, fruits and vegetables canned, from 51 to 242 quarts, meat produced, from 85 to 447 pounds. From another state comes the report that "Sixty thousand farm families enroll in Tennessee food-supply program." [26] Each family enrolled is to be given assistance in working out a list of the kinds and quantities of various foods needed to supply the household for a year.

4. Other assistance from specialists. For example, during 1940 horticultural specialists of the Iowa Agricultural Extension Service met with seed companies to agree concerning varieties of vegetables most suitable for a home garden and the quantity of seed needed. Packets of seed were made up, thus greatly simplifying the problem of families' selecting garden seeds and reducing the likelihood of unsatisfactory results.

5. A widening of the margin between sale price of the product as it comes from the farm and the purchase price of the product as it is customarily bought—such as occurs during a depression.

6. An increase in income of farm families now at low economic levels would make possible a higher scale of living and an increase in consumption of products for which the relative advantage of family production is high, for example, fresh milk. At the present time some farm families cannot afford to keep a cow, the necessary livestock, and even the space for a garden, all necessary if a large volume of family-furnished foods is to be provided. One writer states for example:

> Although the more well-to-do families were better able to purchase food, they produced more for family use. Perhaps because of their higher incomes they could afford to keep milk, cream, eggs, and poultry for home use instead of selling them to increase cash income.[27]

The same situation has also been observed in certain central European countries. It is pointed out that the great majority of farm people appear to live on a diet composed chiefly of cereals and vegetables. Largely because of economic necessity, they sell most of the animal foodstuffs produced.[28]

7. A reduction in money income for some families would have the effect of increasing family-furnished food in that it would become increasingly important to utilize the low-cost sources of food supply to a fuller extent than formerly. Home-grown tomatoes, for example, might replace citrous fruits in the diet.

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[26] *Ext. Service Rev.* 11, August, 1940, p. 105.

[27] U. S. Dept. Agr. Misc. Pub. 356, p. 81.

[28] League of Nations Health Organization, *Quarterly Bulletin*, Vol. 8, No. 3, 1939, pp. 470–97.

8. An increase in preference for a food for which the advantage of family production is high would tend to increase the total volume of family production. The present stress on nutritional importance of milk and fresh fruits and vegetables in the diet may stimulate family production of these products.

9. Subsidy, however small, and official supervision may be very important for some families. The Farm Security Administration, in addition to seeing that its clients have sufficient capital to carry on necessary farming operation, draws up plans for family-food production and checks the extent to which these plans are carried out. Both measures seem to have been important in increasing the family-food production of clients of F.S.A. Federal assistance in such production is not confined, however, to this group.

> In 1940, for the first time, the Department of Agriculture announced that in certain States farm families planting home gardens could earn a soil conservation payment of $1.50. . . . Families had to plant a certain amount of land . . . they had to plant at least a certain number of different kinds of fruits and vegetables, and they had to take measures to keep livestock away from the garden and to keep insects off. Then before a family actually qualified for the $1.50 payment, an Agricultural Adjustment Administration committeeman (a neighbor elected to the job) had to inspect the garden to see that it came up to specifications.
>
> Altogether in 1940 some 645 thousand families qualified for the $1.50 payment in 12 States.
>
> North Carolina led the list of States with 157 thousand qualifying families. Texas was second with 149 thousand approved home garden families.[29]

Some Conditions Unfavorable to Family Production

Influences are operating to decrease family food production, for example:

1. An increase in urbanization will improve the opportunities for marketing products from certain types of specialized farms close to cities—these rank low in family-furnished foods. At the same time it would reduce the cost of getting food to the farm home from retail stores or some other source. Better roads and lower cost transportation would to some extent have the same effect.

Monroe is of the opinion that degree of urbanization affects farm family practices in Southern California. Of them she writes:[30]

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[29] *Consumers' Guide,* August–September, 1941, p. 10.

[30] Day Monroe *et al., Family Income and Expenditures,* U. S. Dept. Agr. Misc. Pub. 356, Vol. I, p. 81.

> There was less difference in value of farm-furnished food per meal from one income level to another than in the three other sections. . . . The greater urbanization of the farm families in this section may have effected a real difference in tendency to purchase food when income permitted, rather than produce it. With the highly specialized farming practice, production for family use probably was less integrated with the entire farm-production program than in the three other sections where general farming, poultry raising, and dairying were prevalent.

2. The size of family unit has decreased so that per unit cost of some family-furnished food has increased. Costs of gardening, for example, are to a large extent overhead, and the smaller volume can be produced only with an increase in per unit cost.

3. Because of decline in the number of children and their greater absorption in school activities, a decrease in some cases has occurred in the supply of family labor that has limited and relatively unimportant uses. Thus in order to continue a former home-production program it may be necessary to withdraw more labor than formerly from production for the market.

4. In some instances the increase in real income has made families willing to forego additional income in order that women and children and other members of the family have more leisure and in order to avoid bothering with the more complicated production organization necessary if, in addition to commercial crops, a wide variety of things for family use has to be planned.

5. Advertising commercial foods tends to increase preference for purchased products so that families are willing to pay a higher margin than formerly for commercial foods in contrast with home products.

6. Farm tenancy checks family-food production especially if major attention is given to getting maximum cash income and if the customary contract does not permit or encourage family-food production.

7. A period of specialization in one crop or in a few crops may greatly reduce the skill of farm families in types of production which are important in providing their members with an adequate diet. Such a period may be the result of land-tenure relationships which happened to develop—a period when a cash crop was especially advantageous—or of ignorance of the importance to family welfare of home-furnished foods.

Striking a Balance

Any tendency toward more "living from the land" is a reversal of a previous trend toward increasing specialization, which in many instances has resulted in greater economy in use of resources. It must be recognized, however, that there are limits to the economy of specialization, that trends tend to overreach the optimum point, and furthermore that change of circumstances may decrease the desirability of prevailing specialization. Although at present it would seem highly desirable for many groups of families to consider the advisability of increasing family-furnished foods, there seems no grounds for challenging the economy of the great bulk of commercial agriculture. The fact must not be overlooked, however, that most farm families derive a very large part of their living from home-furnished food. The limited attention given to it in rural adult educational programs seems to indicate a failure to take a balanced view of rural economy, especially if educational efforts are to include the low- as well as moderate-to-high-income families. Variation in type of product, especially important in the different regions, suggests the need for local studies to determine the relative economy of making versus buying, and nutritional programs should be planned for regions. Stiebeling[31] states:

> Both the assortment of products and the quantities produced could have been better adapted to the dietary needs of the family. Such points should be considered in planning home-production programs if they are to serve the family most economically. . . .

Some nutritionists, carrying on rural adult education, are much concerned with the present decline in production for family use because the shift has brought a break in family food habits. Farm families may give up producing certain foods for themselves, thus securing a larger money income than otherwise. Then, using the test of satisfying hunger and having foods acceptable to the palate, they may buy foods much less nutritious than those formerly provided by the farm. Families, in order to reach wise decisions concerning efficiency in the use of their resources, in many cases must have further education in the nutritive value of various foods so that selection of market substitutes for family production does not result in lowering the level of nutritional health.

[31] U. S. Dept. Agr. Misc. Pub. 405, p. 17.

9

Food Processing and Preparation in the Home

It is commonplace knowledge that the processing and final preparation of food at home have been declining. The shrinkage in processing there can be roughly measured by the expansion of commercial processing which, in Chapter 3, has already been considered for the country as a whole. Family production still has, however, an important bearing on the provision of attractive and adequate diets. Moser[1] says of South Carolina farm families:

> In general an increase in the variety of foods appearing in the weekly diet list was accompanied by a rise in the time spent in household food work. The number of fresh fruits and vegetables was more directly responsible for this effect than was the number of items in any other class.
>
> Dietaries which had a money value higher than the average usually had a relatively high time requirement both for household food work and for the total of food activities studied. . . .
>
> In white households adequate diets did not consistently require a greater amount of time for food activities than did inadequate diets. On the other hand negro households which had adequate diets regularly spent a greater amount of time in food preparation for home use than did those which had diets of less satisfactory nutritive value.

In this chapter we are chiefly concerned with: (1) differences in food processing and the preparation of families who are unlike in type and income and who live on farms and in villages and cities in various parts of the country; and (2) the relative advantage of making versus buying in the processing and preparation of food.

Importance of Food Preparation and Serving

Food preparation and clearing away is still the major household task, its importance being greater for farm than for urban families. To food goes 44, 40, and 36 per cent, respectively, of the total homemaking time of farm, village, and town households of moderate incomes and with homemakers doing little or no gainful work.[2] Average homemaking hours for these households average for the most part somewhat more than 60 hours a week.

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[1] A. M. Moser, *Food Consumption and Use of Time for Food Work among Farms in the South Carolina Piedmont*, S. C. Agr. Exp. Sta. Bul. 300, 1935, p. 61. In this study detailed time and dietary records were secured from 115 white households and 70 Negro households.

Food Purchased and Eaten Away from Home

The higher the income the greater is the percentage of the food money going to food eaten away from home. Among Chicago families with incomes between $1,500 and $1,749, for example, 9 per cent of the food dollar goes to food eaten away from home; whereas for those with incomes of $4,000 to $4,999 the proportion is 22 per cent. For similar income groups in New York City the percentages are 14 and 24 per cent, respectively.[3]

Within urban occupational groups an increase in income brings an increase in that part of the total food dollar going to food eaten away from home. At any given income level, no important difference is apparent among the occupations.

Eating-out habits appear to vary from city to city. In New York City at the lower income levels food eaten out appears to be relatively important. It is, however, equally important among white families in Atlanta, Georgia. These two cities stand out in this respect among those included in the Consumer Purchases Study.

Among large, medium, and small cities within one region no consistent difference is apparent in importance of meals eaten out.

Among farm families, expenditures for meals away from home are negligible—except for those with high income. Farm families reporting from California, at most income levels, spent relatively more for food eaten away from home than did those families reporting in the Consumer Purchases Study from other states.[4]

When urban families are classified by family type, a striking difference is apparent. For families of husband and wife only, a large part of the food dollar goes to food eaten out. The wives in this type of family, more frequently than in any other, contribute to the money income. It should be noted, however, that at any given income level, the income per person is higher for family type 1 than for any other.

Among farm families meals out are relatively important for family types 4 and 5, which contain at least one member in addition to husband and wife, who is over 16 years of age.

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[2] M. G. Reid, *Economics of Household Production,* 1934, p. 82.

[3] U. S. Bur. Lab. Stat. Bul. 648, Vol. II, Table 3.

[4] U. S. Dept. Agr. Misc. Pub. 405, p. 128.

Household Tasks: Farm versus City Families by Income Level

It is generally accepted that farm more frequently than urban homemakers bake bread, cake, and cookies; can fruit, vegetables, and meat; and make their salad dressings and desserts. A few systematic studies have been made.

The Consumer Purchases Study reports that 68 per cent of all farm families reporting in the North and West purchased bread during the week for which data were given, the range being from 60 per cent for those in the low-income group to 78 per cent for those in the high. In the Southeast 42 per cent of all white farm families report the purchase of bread: 22 per cent of those in the lowest-income group and 92 per cent of those in the highest.[5]

A much larger percentage of urban than farm families purchases bread, the range being from approximately 80 per cent of those in the lowest-income group to 100 per cent in some cities for those in the highest. The South and West are much the same in the percentage of families reporting that some bread had been purchased, and the small cities much the same as the large.[6]

In Nebraska, Snyder found little relationship between baking practice and farm or village residence.[7]

Fewer families reported the purchase of cake than bread, and the difference between farm and urban families is rather marked. In the Consumer Purchases Study, 11 per cent of the farm families in the North and West and 5 per cent of those in the Southeast reported the purchase of cake during the week for which a report was made. Only in the Southeast does the percentage of farm families purchasing cake rise with income.

Between one-fifth and one-half of the urban families reported the purchase of cake, the percentage rising with income and being somewhat higher in the large than in the small cities. A slightly smaller proportion of urban families in the Southeast than in the North and West reported the purchase of cake.

Difference in baking practices is also revealed in relation to flour and baked goods purchased. Expenditures for baked goods for every $100 spent for grain products by urban families at various income levels in different regions in the United States is shown in Table 30. In the Southeast with rise in income there is a sharp increase in the relative importance of baked goods for both Negro and white families. Some increase for white families in the West Central and Rocky Mountain and the Pacific Northwest regions also occurs; in other cases, no change is apparent. Baked goods purchased are relatively unimportant in the Southeast and are especially low for Negro families. The relative expenditure for baked goods is somewhat less in small than in large and middle-sized cities in the New England and East Central regions. The larger quantity of shortening purchased in small cities is a natural accompaniment of more important baking.[8]

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[5] U. S. Dept. Agr. Misc. Pub. 405, pp. 244–5. Sharecroppers are not included in these data.

[6] U. S. Bur. Lab. Stat. Bul. 648, Vol. II, Table 5.

[7] E. B. Snyder, *Comparative Costs of Home-Produced and Commercially Produced Bread and Rolls,* Neb. Agr. Exp. Sta. Res. Bul. 115, 1939, p. 7.

*Table 30. Expenditures for Baked Goods for Every $100 Spent for Grain Products; Selected Groups and Regions in the United States; Urban Families Classified by Income, May through August, 1935–1936 **

Color and Geographic Area	Annual Income					
	$500–$999	$1,000–$1,499	$1,500–$1,999	$2,000–$2,999	$3,000–$3,999	$4,000–$4,999
White families						
New York City and Chicago	$79	$80	$81	$78	$80	$81
New England and East Central, a large and 5 middle-sized cities	76	77	77	78	79	78
New England and East Central, 9 small cities	75	74	73	73	76†	
Southeast, one large and 2 middle-sized cities	48	57	60	60	61	64
West Central and Rocky Mountain, 2 large and 4 middle-sized cities	69	72	75	75	76	77
Pacific Northwest, 1 large and 3 middle-sized cities	70	71	72	75	76	78
Negro families						
Southeast, 1 large and 2 middle-sized cities	25	30	38	49	47†	

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II, pp. 141–2. Data are also given for period September through November. The relationships are much the same as shown here. (The number of families reporting details of weekly consumption of food was much greater for the period May to August than for the period September to November; for example, in New York City and Chicago there were 1,259 families for the first period and 464 families for the latter.)

† Income $3,000 and over.

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[8] U. S. Bur. Lab. Stat. Bul. 648, Vol. II, Table 5.

Among farm families a rise in income brings a sharp rise in the pounds of white bread purchased for every 100 pounds of white flour. (See Table 31.) A common tendency is apparent in both the North and West and in the Southeast, but the level of bread purchased in the latter area is low.

Table 31. Percentage of Farm Families Purchasing White Bread and Pounds of White Bread Purchased for Every 100 Pounds of White Flour *

Income and Family Type	North and West		Southeast	
	Percentage of families purchasing white bread	Pounds of white bread purchased for every 100 pounds of white flour	Percentage of families purchasing white bread	Pounds of white bread purchased for every 100 pounds of white flour
Income				
All	68.3	71.0	39.4	7.0
$ 0–$ 499	59.9	55.3	22.2	3.3
500– 999	66.2	62.8	24.6	3.3
1,000– 1,499	68.1	65.7	47.2	7.7
1,500– 1,999	71.1	75.7	53.3	8.8
2,000– 2,999	70.7	83.7	63.5	12.1
3,000– 4,999	80.0	112.6	69.3	19.4
5,000 and over	77.8	108.7	92.3	38.0
Family type				
Type 1	74.9	85.6	39.3	9.5
Types 2 and 3	71.1	78.0	40.1	9.1
Types 4 and 5	64.0	67.1	40.2	7.1
Types 6 and 7	63.3	60.5	36.7	4.4

* U. S. Dept. Agr. Misc. Pub. 405, pp. 244 and 246.

The level of bread in contrast with flour purchased is lower in the Mountain, Plains, and Pacific areas than in the New England, Middle Atlantic, and North Central areas.[9]

The percentage of farm families purchasing mayonnaise salad dressing increases with increase in income. Of families reporting from the North and West, for example, 12 per cent with incomes of $500 to $999 and 31 per cent with incomes of $3,000 to $4,999 purchased mayonnaise.[10] In this case, however, increased use rather than buying in place of making may have accounted for the greater percentage of families purchasing.

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[9] U. S. Dept. Agr. Misc. Pub. 405, p. 195.

[10] *Ibid.*, p. 222.

No difference is apparent by income level in the percentage of farm families reporting the canning of fruits and vegetables. However, the average quantity reported canned is somewhat higher for the high- than the low-income families.[11] Among regions great differences exist in the average amount canned, it being high for the group reporting from Pennsylvania and Ohio, and also from Washington and Oregon, and low for those reporting from California and the Southeast.

Pressure to economize may seem very important for low-income families. High-income families, however, consume a greater variety and may feel that they can afford many foods especially suited to home processing; as a result, some types of food processing and preparation may be more important for them than for low-income families. If hunger-satisfying qualities of food are the major ones sought, home production may appear to offer little advantage over products of mass production. High-income families, on the other hand, may feel that they can afford the luxury of food with a truly home-cooked flavor. Such food is often very expensive to buy.

Crawford,[12] for example, reports of English housewives:

> Inside the social classes one finds in the two working-class grades (C and D) a tendency for more flour to be purchased per head as the "per caput" income rises. Where the housewife feels that her housekeeping resources are subject to less pressure to provide the bare necessities of life, she is more ready to exploit her natural interest in cooking. One of the hindrances to the wider development of home cooking is undoubtedly financial stringency in the housekeeping budget.

The shift in production practices of English urban households with income is shown in Table 32.

A similar situation is indicated by the percentage of families carrying on food processing of various kinds among a group of farm families in Kentucky. The higher the income the higher the proportion of families carrying on most of the process. In the processing of hominy a decline occurred, with increase in income, in the percentage of families reporting the preparation of this food. This probably was associated with a decline in its consumption. Bread-making was not reported, probably because it was carried on by all groups. The "making of jams and preserves" was reported by 23 per cent of the lowest income group and 67 per cent of the

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[11] *Ibid.*, p. 286. Corresponding data are not available for urban families.

[12] *The People's Food*, 1938, p. 170.

Table 32. Cooking Regularly Done at Home, Excluding Meat, Fish, Vegetables, and Puddings—English Urban Families *

Items	Classes †				
	AA	A	B	C	D
No. of families	422	466	971	2,124	1,006
Foods	*Percentage Reporting Cooking Regularly Done*				
Cakes	69.9	63.9	62.9	67.6	45.1
Pastry	22.7	24.9	32.4	36.1	20.0
Soups	54.7	41.2	40.6	33.4	34.6
Jams and preserves	38.6	29.4	24.7	14.2	5.6
Marmalade	20.9	12.7	10.6	2.5	0.6
Custards	12.6	8.8	9.3	9.1	5.6
Pies and tarts	0.2	0.4	1.6	4.3	4.8
Savouries	24.9	10.1	8.7	2.0	1.8
Soufflés	7.1	1.7	0.3	0.1	
Bread	3.1	2.8	6.4	9.6	9.4

* Wm. Crawford and H. Broadley, *The People's Food*, p. 115. Data such as these should be considered with reference to the frequency with which foods are consumed. The low frequency of production of some items is probably due solely to the low frequency of their consumption. For example, a very small proportion of low-income families are reported consuming soup, their consumption, in contrast with that of the high-income families, is also low for cakes, buns, pastries, marmalade, milk puddings, custards, and other egg dishes.

† Class AA had incomes of £1,000 and over; A of £500–£999; B of £250–£499; C of £125–£249; D under £125.

highest. For "smoking meat" the proportions were 5 and 26 per cent, respectively.[13]

The Depression and Home Processing [14]

A study made in Milwaukee reports some shifts in purchases from 1929 to 1931. Flour consumption per family rose from 177 pounds in 1929 to 256 pounds in 1931, and baking powder from 64 to 79 ounces; cans of soup purchased decreased from 75 to 57 cans. Mayonnaise dressing rose, however, from 27 to 24 jars, and the number of cakes per family rose from 55 to 65.[15] Early in the depression, because of increased home-canning, the glass jar industry experienced a minor boom. Farm families in 1933 were reported to be doing much more canning and preserving than in 1929. In some cases small, supervised, community-canning centers were established.[16] Farm families also became more interested in meat-cutting demonstrations.[17]

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[13] F. M. Williams *et al.*, *Family Living in Knott County, Kentucky*, U. S. Dept. Agr. Tech. Bul. 576, 1937, p. 25.

[14] See also pp. 27–31.

[15] "Consumer Analysis, 1931," *Milwaukee Journal.* See also W. L. Morgan, *The Family Meets the Depression*, 1939.

Family Type and Home Processing of Food

The larger the family the greater is the number of hours spent in home-food preparation. Such was the findings of various time studies. In one study in Oregon in households of two to three members, 48 per cent of the farm homemakers baked none of their bread and 40 per cent baked all. In households of six or seven, 23 per cent baked none and 46 per cent baked all.[18] Among a group of New York families reporting in 1928–1929 it was found that

> The size of the household was clearly associated with the purchase of bread; generally, small households bought, but large households baked, the bread they used.[19]

Among farm families reporting in the Consumer Purchases Study in the North and West an increase in size of family brought a decrease in the percentage reporting the purchase of bread and a fall in the ratio of bread to white flour purchased. (See Table 31.) With increase in size of family, a marked decrease occurred in the Southeast in the percentage of farm families reporting the purchase of cake. An increase in size of family is accompanied, however, by a fall in per capita income. Per capita income rather than size of family unit was probably the important factor.

Gainful Employment of Homemaker and Home Processing of Food

It is generally assumed that a homemaker who is gainfully employed is likely to spend less time in food preparation than one doing no gainful work. The difference in total time thus spent and in that given to the preparation of various foods or to the use made of ready-prepared foods has been studied to a very limited extent. For example, 102 rural homemakers in Rhode Island in 1929, not gainfully employed, reported that they spent 24 hours and 20 minutes in food preparation and clearing away, and 69 rural homemakers with full-time gainful employment, in the same state in 1935, reported spending 12 hours and 30 minutes in food preparation and clearing away.[20] This difference in time is partly accounted for by some assistance received from other members of the family, by less dawdling, by more efficient methods, by simpler menus, and by food which is easily prepared (including ready-cooked foods). The difference in the use of some prepared foods by homemakers gainfully employed, part and full time, is shown in Table 33. Homemakers employed full time more frequently than those employed part time purchased bread, cake, and canned foods and less frequently reported making bread or canning.

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[16] U. S. Dept. Agr. Misc. Pub. 182.

[17] U. S. Dept. Agr., *1932 Yearbook,* pp. 556–8.

[18] Ore. Agr. Exp. Sta. Bul. 256, 1929, p. 40.

[19] Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, 1933, p. 11.

[20] R. I. Agr. Exp. Sta. Bul. 267, 1938.

*Table 33. Percentage of 624 Earning Homemakers Using Commercial and Home-Prepared Foods in Southern Rhode Island, 1929 **

Items	Homemakers Earning		
	Part time	Full time	All
Bread			
Commercial	84.2	90.6	86.7
Home	15.0	10.6	13.3
Cake			
Commercial	10.0	13.4	11.4
Home	86.5	87.7	88.6
Canned foods			
Commercial	76.3	88.0	80.9
Home	22.9	13.0	19.0

* R. I. Agr. Exp. Sta. Bul. 259, 1936, p. 22.

The substitution of prepared foods for those home processed is likely to vary with the income level. The need for money income for things which seem to be outside the scope of family efforts may lead some low-income families to continue much the same food production as was carried on before the wife became gainfully employed. Hughes,[21] for example, reports:

> Occasionally a mother states that she uses more easily prepared foods now than before she began to work, but such a statement is an exception.

A systematic investigation might present a somewhat different picture. Among rural homemakers in Rhode Island the percentage making bread and cake and canning decreased with increase in their earnings. Higher earning, of course, provided more purchasing power. They may have been accompanied by less time for homemaking because this study included both part- and full-time gainful workers.[22]

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[21] *Mothers in Industry,* 1925, p. 181.

Economy of Home Processing of Food

Studies of the returns per labor hour in time spent in home-food processing have been made in the main by two groups: research workers in agricultural experiment stations and the staff of the School of Living, directed by Mr. and Mrs. Borsodi.

A study of bread-making by Vermont farm homemakers reports a return per labor hour of 33 cents.[23] Another study reports:

> The Nebraska homemaker's time is worth from 22 to 38.9 cents per hour for making bread. . . .
>
> The savings of Nebraska homemakers from the home production of white loaf bread is 2.56 to 5.26 cents per pound, depending upon the kind of liquid and the fuel used. From the actual records the savings ranged from 2.95 to 5.9 cents per pound. . . . Similar savings resulted from the home production of whole wheat bread but were somewhat less. . . . The total cost of fancy rolls made in the laboratory . . . ranged from 10.27 to 11.8 cents. Costs of those purchased by homemakers ranged from 10 to 29 cents per pound.

Following this study Snyder concludes: "Household production of bread appears to be a sound practice in the economic sense." [24]

The relative economy of homecanning or purchasing of selected canned vegetables, that is, tomatoes, beans, greens, and peas, has been studied in Vermont. In homecanning the housewives on the average earned 50 an hour for tomatoes and 49 cents an hour for beans; whereas in canning greens and peas they lost 5 and 15 cents an hour, respectively. The spoilage was much higher in the latter than in the former group of products.[25] The homecanned foods in quality rated below commercial foods with which they were compared in estimating earnings per labor hour.

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[22] R. I. Agr. Exp. Sta. Bul. 259, p. 25.

[23] M. Muse and M. I. Liston, *The Relative Economy of Household Production and of Purchase of White Bread,* Vt. Agr. Exp. Sta. Bul. 392, 1935, p. 2. Records were secured from 40 housewives.

[24] E. B. Snyder, *Comparative Costs of Home-Produced and Commercially Produced Bread and Rolls,* Neb. Agr. Exp. Sta. Res. Bul. 115, 1939, pp. 23–4. Only direct costs of ingredients and fuel were included. Both farm and town women reported—76 in all.

[25] E. G. Holmes, *The Relative Economy of Household Production and Purchase of Four Canned Vegetables,* Vt. Agr. Exp. Sta. Bul. 449, 1939, p. 2. In this study 61 housewives cooperated. Money costs of canning included raw vegetables, added ingredients, fuel, spoilage, depreciation on jars, and processing equipment.

The reports from the School of Living present the returns per labor hour from home-food processing in a much more favorable light: "For every hour devoted to canning and preserving your earnings will average between 75 cents and $1.10." [26]

A typical family requires only 1 hour and 54 minutes weekly to make all the baked goods the family consumes at home. . . . "During this time, money will be saved and earned at the rate of 43.2 cents per hour." [27]

> With modern machinery, grinding wheat and corn at home is simple and easy, and takes little of your time. Yet even if you watched the mill all the time it was operated, you would be earning from $.52 to $1.06 an hour in milling flour, and $6.29 an hour in milling breakfast food, earnings higher than those paid to many skilful professional men or women.[28]

In the light of her experience, Mrs. Borsodi concludes, "I've found little in the way of food, clothing, and services of various kinds which could not be produced in less time than the average women would find it necessary to spend in order to earn the money with which to purchase these things factory made." [29]

She states: "If the average woman were to do a complete job of cooking and baking at home she would earn the equivalent of $6 net per week." This is calculated to require about 3 hours per day.[30]

These figures are very challenging. They are supported by what, on the surface at least, appears to be careful cost analysis, including overhead costs in such items as kitchen structure, share of the taxes, heat, water, and depreciation on general as well as special equipment. They are based, however, on experiments at the School of Living rather than on practices of "typical" families.

The introduction of cold-storage lockers is a recent development, leading many families to assume responsibility for meat storage and to a lesser extent for the storage of fresh fruits and vegetables. They are used chiefly by farm, village, and town families. For many farm families, they have greatly reduced the amount of canning and curing of meat. As of January, 1940, there were estimated to be in operation 2,500 food locker units, providing one million individual lockers. They are most important in Iowa, Washington, Minnesota, and Wisconsin, and a marked expansion has been reported in the South. One-quarter of the patrons reporting on place of residence lived in towns. Some study has been made of the savings effected by comparing purchase at retail with home-produced animals slaughtered, processed, and stored at usual rate. For beef it was estimated that the savings amount to 8 or 9 cents a pound.[31] Saving to town consumers is estimated at 2 to 3 cents a pound.[32]

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[26] The School of Living, *How To Economize on Canned Foods*, 1939, p. 3.

[27] School of Living, *How To Economize on Bread, Cake and Pastry*, 1938, p. 3.

[28] School of Living, *How To Economize on Flour and Breakfast Foods*, 1938, p. 3.

[29] "What Should the Home Contribute," *J. H. Ec.*, Vol. 28, June, 1936, p. 366.

[30] *J. H. Ec.*, Vol. 28, June, 1936, pp. 366 and 367.

The use of a food locker may bring a disadvantage, especially to urban families, in that it necessitates a family's eating all cuts of meat. With beef, those families with moderate to high income may find a considerable increase in the frequency of stews, boils, and beef soups. Town families may be inconvenienced by having to provide their own delivery. An advantage in some cases lies in families' being able to have "choice" grades of meat in a community where "good" is the best grade usually available in butcher shops.

Future of Home Processing of Food

Mr. and Mrs. Borsodi urge, in the interest of economy and better health, that food processing as well as serving be retained by or returned to the family. At the other extreme are those who feel that progress alone lies in further specialization. To quote one such theorist:

> Cooking, laundry-work, mending, scrubbing, and retail buying have not been kept in the hands of the household out of necessity, nor because they are most appropriately and efficiently attended in the household, but by the might of old custom and human mental laziness.[33]
>
> Everything can be bought more cheaply than it can be made outside the factories.[34]

Such studies as we have, and they are very limited in scope, suggest that families at the present time frequently underrate the benefits of family production. Research projects and sounder education on this score may help to correct defects in use of resources. Any tendency to more rural living, as is suggested by those who visualize a return to small farms of many families now living in congested cities, should stimulate home processing along with production from farm and garden. Better equipment should have the same effect, as well as part-time jobs for women which permits them to carry on the customary household tasks while contributing something to money income.

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[31] Agricultural Marketing Service, *Marketing Activities,* Vol. 4, February, 1941, pp. 13–5.

[32] L. B. Mann, *Refrigerated Food Lockers,* Farm Credit Administration Cir. C-107, 1938.

[33] F. Müller-Lyer, *The Family,* 1931, p. 326.

[34] *Ibid.,* p. 243.

Among the forces leading to a decline in food processing and other production is any increase in urban living, high rents, small kitchens, and the gainful employment of women. Commercial foods increasingly may be looked upon as a thrifty way of providing for the family. As this happens, former skills are lost and can be restored only with much effort. One study throws some light on a change occurring in attitudes, which indicates that further decline may be expected:

> Many of the gainfully employed homemakers spoke of having done much more home canning in the past than at present. In a number of cases this was evidently due to lack of time because of their money earning activities, but in other instances a variety of causes contributed. One of these is the increasing variety and popularity of commercially canned goods. The old rural feeling of shame over serving food that has been in a tin can is rapidly disappearing.[35]

In spite of improvements in equipment which make home processing much less time consuming and working conditions in the home more pleasant, the trend at the present time is toward increasing commercialization of food processing even for farm families and of food serving also for urban families.

The trend has been so rapid that some people visualize the disappearance of the home kitchen and dining room. In their place they see community canteens and various other social feeding centers.[36] Desire to live in a certain way and eat under certain conditions, it would seem, will have to change considerably before such a system will appear satisfactory to a large part of the population in the United States.

The war may contribute toward such a shift, and increase in the gainful employment of women may be a factor. Furthermore, the development of the lunch programs at industrial plants and other work centers may develop a greater preference for eating outside the home. It is of interest that such a development has occurred in Great Britain. Darling[37] reports:

> So far, communal feeding centres, named British Restaurants by Lord Woolton, have been opened in more than 100 towns. There are 150 centres in London alone. At most of them a satisfactory meal can be bought for 9*d.* or a shilling. Some also serve meals on a cash and carry basis. Although they are a new feature in British working class life they are becoming popular and clearly meet a real need. They should be retained after the war for they offer an escape from much household drudgery.

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[35] R. I. Agr. Exp. Sta. Bul. 259, p. 23.

[36] See, for example, F. Le Gros Clark and N. Brinton, *Men, Medicine and Food in the U.S.S.R.*, 1936.

[37] George Darling, *The Politics of Food*, 1941, p. 101.

III

The Consumption of Food

10

Food Preferences and Habits

THE rice and chow mein of China, the pastries and buttermilk soup of Denmark; the omelettes, snails, and crêpes of France; the bacon and tea of England; the scones and haggis of Scotland; the pretzels and beer of Germany; the tortillas and chili of Mexcio; the frozen foods, fantastic breakfast cereals, milk drinking by adults, unfermented fruit juices, and soft drinks in the American diet; and a multitude of other national foods bear witness to striking differences in food preferences and habits.

Differences occur in total food nutrients consumed per capita, in the kind and quantity of basic food materials used, and in the way in which they are combined, cooked and served. Within countries there are regional differences; seasons bring change in weather, which affects appetite and foods available. Special and unusual foods are an important part of ceremonies and recurring festivals. Family as well as community customs exist. Striking difference often occurs in food preference among children brought up within the same family circle. Time brings change. At present, homecooked cereals are yielding place to ingenious forms of ready-to-serve cereals; chilled fruit cocktails to a large extent are replacing, on the menu, soup from the family kitchen; steamed and milk puddings are becoming more and more rare and ice cream and other frozen desserts more common; an enormous increase in the consumption of crisp, fresh vegetable salads and unfermented fruit juices has occurred; steak, pie, and fried potatoes have almost entirely disappeared from the breakfast menu; rich fruit cake is being relegated chiefly to the Christmas season.

Volumes could be written on food preferences and habits. Emphasis might fall on (*a*) their characteristics, (*b*) the forces that shape them, and (*c*) the effects which they have on individuals or groups. Nutritional health, to be discussed in Chapter 17, is a major effect to be considered at length. But food habits touch many aspects of life. Child psychologists are concerned, for example, with the processes by which a child is introduced to a new food and the conditions under which his food consumption takes place. These may vary greatly in the restriction imposed on freedom, in the affectional needs and sense of security provided, in the rebellion aroused against authority or in the acceptance of it. The quality of family life is considered by many to be affected by certain aspects of food habits. Food habits affect the way in which individuals fit into community life. At times national food habits interfere with patients' being readily cared for in hospitals and with finding suitable summer camps to which to send children during the summer. They complicate the school-lunch programs and cause much of the intense homesickness of some young men in C.C.C. camps and in the army.

In this chapter and in several which follow we are primarily concerned with factors shaping food preferences and habits. They are very complex; hence it is possible to do no more than touch briefly on what seem to be significant points. The subject-matter fields of social anthropology and psychology and the studies made by advertisers, processors, agriculturalists, and educators are drawn upon.

Interest in Food Preferences and Habits

Knowledge of food preferences and of habits and factors influencing them is of interest to several groups, for example:

(*a*) Those who are curious about the world in which they live, who enjoy knowing the facts of food choices and of likes, dislikes, and factors affecting them for no other reason than for the fun of knowing.

(*b*) Nutritionists and others interested in raising the level of nutrition and in otherwise helping people to select, prepare, and serve food. Among other things they would like to know what present food habits are, what likes and dislikes exist that make it easy or difficult to bring about an improvement, what gives rise to bad habits so that they may be avoided in the future.

(*c*) Processors who study food habits and preferences would like to know trends in food demand so that production volume can be adjusted.[1] For example, processors probably benefited most who early recognized the increase in demand for canned luncheon meats. Processors also want to know consumers' attitude to various attributes of their products, for example, color and flavor, and to the sales' conditions, for example, price and type of packaging. In addition, they want to know what kind of appeal or information will cause consumers to increase their preference for one brand in contrast with another.[2] Since processors in large measure have been interested in brands rather than basic foods they have tended to concentrate attention on minor differences.

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[1] The *Bakers' Helper*, Aug. 5, 1939, p. 223, announces, for example, that "The Psychological Corporation and other organizations have worked out methods of determining to an amazingly accurate degree the popularity of an article. To a remarkable extent they have been able to predict the changes in sales—either increases or decreases—before actual changes in sales reveal these trends. Also it is possible to obtain information upon consumer wants that is of tremendous help in analyzing conditions so that strategy can be used in capturing a larger market, or in forming judgment about a new and changed product."

(*d*) Agricultural agencies[3] which during recent years have studied consumer demand for food for much the same reason as processors. They, too, are interested in trends. As a basis of production plans, they want also to know what kind of a product, for example, apples, asparagus, and potatoes, consumers prefer and how it "should" be merchandized.[4] Recent advertizing of meat, dairy products, apples, etc., has increased their interest in knowing what influences shape consumer choice among foods and how these may be changed. In addition, food preferences are studied for the purpose of providing specifications and standards so that A, B, and C grades, for example, may reflect consumer preference. A study of preference in this case is confined to comparisons between various characteristics of the same food,[5] largely with the thought of providing a basis for sorting products.

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[2] H. C. Link, *The New Psychology of Selling and Advertising,* 1932, lists the following subjects for psychological surveys (pp. 19–20): "(1) What are the probable reactions of the public to a new product? Will it be accepted and what types of appeal are most likely to insure its acceptance? (2) Why is one product used by so many more (or less) people than another type? For example, why are corn breakfast foods used more than any other types, and why is one brand of corn breakfast food preferred to all others? (3) What is the possibility of changing the buying habits of the public with respect to a certain type of product or a specific brand? What are the specific obstacles to be overcome in changing established habits and what types of appeal are likely to be effective? (4) What are the buying habits of people in regard to a certain type of product? For example, what is the relative popularity of the different kinds of branded breakfast foods—corn, wheat, rice, bran, etc., and in each of these classifications, what is the relative popularity of the different brands? (5) What are the buying habits of the people in respect to places and manner in which they purchase certain items? . . . (6) What type of selling or advertising appeal is likely to prove most effective in connection with the marketing of an old or a new product?"

See also L. O. Brown, *Market Research and Analysis,* 1937, especially Chapter II; and A. W. Kornhauser and D. F. Lazarfeld, *The Techniques of Market Research from the Standpoint of a Psychologist,* American Marketing Association, Inst. of Mgt. Series 16, 1935.

[3] Studies for the most part have been made by the state agricultural experiment stations and the U. S. Bureau of Agricultural Economics.

[4] For examples of such studies see Cornell (N. Y.) Agr. Exp. Sta. Bul. 579, 1934, and 716, 1939; Cornell (N. Y.) Agr. Exp. Sta. Memoirs 220 and 225, 1939; Mass. Agr. Exp. Sta. Bul. 250, 1929, and 282, 1932; Conn. Agr. Exp. Sta. Bul. 227, 1938; U. S. Dept. Agr. Tech. Bul. 115, 1929; Mich. Agr. Exp. Sta. Spec. Bul. 288, 1937; Wis. Agr. Exp. Sta. Res. Bul. 124, 1934.

[5] See Chapter 26.

War-Time Problems of Food Preferences and Habits

Many new situations, growing out of the war, increase the interest in food preferences and habits. The desire to increase national fitness raises questions concerning the relationship of food habits to adequate nutrition. A shortage of customary supplies of one or more foods may bring rationing. Group feeding, involving people with very different food habits, becomes important where cities are bombed and homes destroyed, where children with their mothers and teachers are evacuated to places of safety, and where men and women of the fighting forces eat in large groups in canteens.

A report on "The Relationship between Food Habits and Problems of Wartime Emergency Feeding" was made in May, 1942, by the Committee on Food Habits of the National Research Council. This stresses the psychological significance of food habits to the maintenance of morale and makes some recommendations concerning group feeding in the United States. To take care of the great heterogeneity of food habits two major recommendations are important: (1) to ensure some choice, and (2) to prepare food in such a way that the people who consume it are freed from any suspicion that foods repugnant to them have been used.

"What," "Why," and "How" of Food Habits

In some cases it is enough to know what food habits and preferences exist. The question of "why," however, soon follows. But a person attempting to explain in detail the influences responsible for food choices will feel shortly as if he were sitting for the legendary Chinese examination containing only one request: "Set down all you know." Persons concerned with action will be primarily interested in the "why" only so far as it throws light on how food habits may be modified. They will concentrate largely on factors that cause differences in food habits and preferences among various individuals, families, and communities and on the effect of educational or advertising programs and of price and income change.

Food habits and preferences are registered in what people do, by what they purchase in the market or eat at home, in restaurants, cafés, and other places, and what they pay for various foods. In addition, consumers may be asked to state their preferences or their likes and dislikes. At the same time they may be asked to give reasons for their choices. Research techniques for dealing with likes and dislikes are in the process of developing and will be discussed briefly later in this chapter.

Factors Influencing Food Preferences and Habits

Factors influencing food habits and preferences may be classified in many ways. They are considered here under five categories: (1) physiological needs; (2) social organization; (3) economic resources and cost; (4) attributes of foods; and (5) psychological attitudes. Some understanding of the nature of these influences will be helpful in developing hunches in selecting pertinent factors to be investigated in a given situation. Psychology, although given a separate heading, is an all-pervading factor. Attributes of a food have significance only because of values attached to them. The use of economic resources of time and money cannot be considered apart from the importance that consumers attach to them. The price paid for a product may be the result of relative preference of consumers for various foods.

Physiological Need

Physiological need is a major factor in bringing basic similarity to the diets of widely separated communities, if diets are measured in terms of nutrients. But the same physiological need may be and is met in hundreds of different ways. Differences in physiological need do occur, however, even among nations. The low calorie consumption of an "adequate" diet of the Japanese people, for example, is often accounted for by their small stature. It is important to recognize that both small stature and low level of activity, at times looked upon as a national trait, may be the result of customary food habits.

Within a community, food consumption will vary from family to family with difference in number, age, and sex of members and with their occupation and other activity. Some of these differences will be considered in Chapter 16.

Physiological need is of two types: (*a*) the desire to avoid or to reduce the discomfort of hunger and (*b*) the desire for health and vigor. During a food shortage, hunger pangs have the first claim. Thus the diets of low-income families are likely to be relatively high in filling foods, even though other foods, which might have been purchased with the money expended, would have contributed to a higher level of health.[6]

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[6] The greater importance of filling foods at the lower-income level is evident in the findings of the Consumers Purchases Study. It is also indicated in many smaller studies that have been made, for example, J. Crum, *An Analysis of Food Choices in Relation to Nutritive Value and Cost in Junior High School Lunch-Rooms,* unpublished thesis, University of Washington, Seattle, 1932. For children included in this study the average lunch ticket was 12 cents, and the nutritive value was considerably less than one-third of the daily food requirement of the

A study of food habits must recognize the limitation of physiological need as well as the wide range of possible ways of meeting it. No one food or any given quantity of it is essential; and the use of one food often may bar another automatically. A few systematic studies provide interesting evidence of interdependence. Hobson,[7] for example, made a study of cheese preferences. When cheese was made available on the table to three groups of people, without extra charge, it was found that they ate more cheese than usual if the meals contained cold foods or meat substitutes as main dishes, if the meals were scanty in volume, and if fruit salads or desserts, especially fruit pie, were served. On the other hand, it was found that they ate less cheese than usual if the meals were elaborate, as tended to be true of Sunday and holiday dinners, if there were heavy meat dishes, and if desserts were of the custard, gelatine, or ice cream type.

The substitution of one food for another is complex. The nutritionists may say, for example, that rice is not a substitute for potatoes, or that breakfast cereal is not a substitute for eggs. Yet in terms of satiety, as well as some other values, such substitution may be looked upon as satisfactory to consumers.

Appetite and Nutrition[8]

Some people scoff at the idea of science as a guide to choice of food and insist that food is so basic and "science" so very young that the race, to have survived, long ago must have developed in appetite a satisfactory "natural" guide to choice of foods. They agree that appetite in our complex society with its many "unnatural" foods may have become perverted; they maintain, however, that if a person sticks pretty much to simple, basic foods, not too highly refined, as foods were in the days of our pioneer fathers, for example, that all rules evolved by dietitians on the basis of scientific discovery are so much useless lumber. There is a small grain of truth in the argument, since appetite, when conditioned by long-tried customs, may come to be a satisfactory guide to nutritional health. It should be recognized, however, that at present we are dealing with many new

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average junior-high-school child. The author considered that student choice showed sagacity in the buying of food with satiety value. The balance of the menu or the aesthetic qualities appeared to play little part in selection.

[7] A. Hobson and M. A. Schaars, *Consumer Preferences for Cheese,* Wis. Agr. Exp. Sta. Res. Bul. 128, 1935.

[8] "Carlson . . . separates sharply the two sensations (hunger and appetite). The sensory apparatus for hunger lies in the walls of the stomach . . . and is stimulated by the contractions of the musculature. The sensations aroused are more or less disagreeable. Appetite, on the contrary, is an entirely pleasant sensation aroused in part through the sensory nerves of taste and smell, but also by the sensory fibers in the gastric mucosa." W. H. Howell, *Text Book of Physiology* (4th ed.), 1940, p. 279.

foods, that foods tempting the appetite are not limited to simple, basic foods, and that many dietary rules emphasized by dietitians are designed to increase the consumption of natural foods. Furthermore, it should be pointed out that many primitive people, using "natural" foods, suffer from serious dietary deficiencies. Many cases can be cited of "wrong" choice, continuing with foods close at hand to meet all physiological needs. Instinct did not serve, for example, to cure beriberi among the Japanese or scurvy among the early settlers in the United States.

Considerable attention is being given at the present time to the relationship of "instinct" to good food habits. Gesell, of Yale University, feels that self-demand schedules bring highly desirable feeding habits in babies, the time of feeding and the amount of food taken being determined by the child.[9] There is a belief among some that such self-determination reduces the occurrence of feeding problems later. Some people are working on the theory that taste buds register dietary deficiencies so that the individual derives more satisfaction from food that is good for him.

One experiment bearing on this point is of interest. Davis allowed three newly weaned infants to choose foods in such quantities as they might desire from a wide range of commonly used natural food materials, unmixed, unseasoned, and unaltered except, in the cases of some, which were cooked in the simplest manner. The children varied their food consumption from day to day, sometimes eating large quantities of one food, concentrating perhaps on spinach, eggs, and even cod-liver oil. Yet over a period of time a satisfactory balance of nutrients was consumed. "The immediate results appear to equal at least the best results obtained from the commonly prescribed diet in growth, weight, bone development, musculature, general vigor and appearance of health and well-being."[10] Although the period of time over which the experiment was carried on was considered too short and the number of infants involved too few to warrant any conclusions as to the success of the self-selected diet from the standpoint of nutrition, the findings are suggestive.

Undoubtedly, appetite provides certain guideposts, but how far are they reliable? Up to what age? In what circumstances? If foods, at present customary in our diet, are provided? Or if selection is restricted to foods, choice among which could not result in a deficiency? In the latter case many of our sweet foods and white-flour products should not be offered. Mothers who dislike to discipline their children or to bother preparing special foods for them may falsely conclude that this study supports their practice of allowing young children to join the family circle and eat what they please from the selection of food served to the other members of the family. Such a circumstance bears no resemblance, however, to the conditions of the experiment. Camp and Eppright[11] believe that

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[9] See A. L. Gesell, *Biographies of Child Development,* 1939.

[10] C. M. Davis, "Self-Selection of Diet by Newly Weaned Infants," *Am. J. Diseases Children,* Vol. 36, October, 1928, pp. 651–70.

> If there is an innate protective mechanism in human beings, it must be perverted very early in life, perhaps by psychological means or by the common practices by which the natural flavors of foods are distorted. Otherwise, why should thousands of people die yearly from improper choice of food, and why should thousands of others fail to enjoy an optimal nutritional state?

Future investigation may throw further light on appetite in relation to physiological need. It may be satisfactory only after long years during which, through trial and error, customs that laying down a pattern of adequate nutrition have evolved. If the environment changes so that some customary foods are no longer available, appetite may not quickly direct choice to new foods, even though the balance among foods formerly providing adequate nutrition is gone.

Social Organization

It is customary for most meals to be planned, prepared and served by family members and eaten at home. During recent years group feeding of children at school has been increasing and family members are taking more meals at restaurants, cafés, etc. Questions naturally arise as to the effect of such change on food habits. The family production and consumption are characterized among other things by highly personal relationships and attention to individual likes and dislikes, of at least some members of the family, by small-scale preparation by housewives who for the most part know little of food values or of many methods of food preparation. What are likely to be the results of these conditions?

Home preparation of food seems likely to entrench habitual choice. Imitation is confined to a small group. Individual likes and dislikes tend to be catered to. In addition the habits of preparation reinforce established consumer preferences. Eating in larger groups, on the other hand, appears to offer greater opportunity for any one consumer to get acquainted with a variety of prepared foods; attention to individual desires would probably be somewhat reduced, and more scope would be provided for introduction of new methods of food preparation.

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[11] A good many studies have been made, for example, on rats and other experimental animals to discover the extent to which they will choose nutrients providing them with the most adequate diet. These studies are discussed by H. Camp and E. S. Eppright, "Factors Affecting Appetite," *J. H. Ec.*, March, 1929, p. 150. There is evidence that rats and mice will select, from among the various nutrients offered, those which are most favorable to their growth and well-being.

A number of studies have been made of the effect of group feeding in college dormitories. Some people are of the opinion that students who come with bad food habits leave with them, in spite of being presented with an adequate diet. The army at the present time offers opportunities for studying the effect of group feeding, as do also the feeding stations that have been established in heavily bombed cities of England.

The impact of the family on food consumption of individual members may also be a factor of considerable importance. For example, whose likes and dislikes dominate? Investigation on this point is very limited. Crawford is to the opinion that in England "Father is still the dietetic pivot of the household."[12] Davies,[13] following a study of families in Massachusetts, reports that

> The housewives, chiefly through lack of knowledge of even the simplest principles of good nutrition, do not make provision for meeting the food requirements of growing children. The meals are planned solely from the point of view of the tastes of the adult members of the household, and the children have free access to anything on the family table, in quantity as well as in kind.

Economic Resources and Cost

Economic resources of consumer units and the relative costs of specific foods affect food choice, and the choice in turn influences the use made of the productive resources of society. This broad subject can be examined here only in part.

To the psychologist is left the task of explaining likes and dislikes. Economic theory starts by assuming the existence of certain desires. The process investigated is that of using fully the resources available. Choice between alternatives is assumed to be made on the basis of relative utility or satisfaction to be secured in consumption in relation to cost. It is held that maximum returns will be secured if people in making decisions have perfect knowledge, make systematic comparisons, and are free to use their resources as they choose. It is also assumed that desire for economy, for making the most of scarce resources, is a fundamental characteristic of people in general, although it is recognized that some people give much more thought and attention to it than others.

Money as well as time and energy costs are important in securing and using foods. The influence of price and income on food consumption is the subject of Chapters 13 and 15.

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[12] *The People's Food,* p. 84.

[13] Esther S. Davies, *The Food Consumption of Rural School Children,* Mass. Agr. Exp. Sta. Bul. 241, 1928, p. 137.

Time and Energy Costs to Consumers

Time and energy costs may affect consumption in several ways. These costs as they relate to buying may affect not only the type of store patronized but also the type of food used. For example, the time cost of buying fresh fruits and vegetables, which cannot be stored at home very long, may be high in contrast with that of buying canned fruits and vegetables. Time and energy cost of food preparation and of serving different foods varies considerably. The Mixed Committee of the League of Nations[14] comments as follows:

> Since the war, there has been an increasing tendency for housewives in Western countries to concentrate on the "superior" cuts of meat, suitable for grilling or rapid roasting, and to neglect the allegedly "inferior" cuts available for stewing or boiling. . . . This development is partly due to an increased taste for steaks and chops, and partly to the fact that their preparation requires a minimum of time. The entry of women into industry and the development of interests outside the kitchen has put a premium on foods which can be quickly prepared.

Rhoades reports that sausage, which is easily and quickly prepared, "appeals particularly to the housewife who is working and who is attending social functions during the day."[15] Desire to reduce cooking time to a minimum is especially pronounced during the summer when roasts and boiling pieces are neglected and when demand concentrates on steaks, chops and cutlets, and other frying pieces. Labor-saving methods and various ways of saving time in general rate high in the American culture. The impact of this interest on cookery practices and in turn on food habits may be very important. A marked change appears to be occurring among some families: Daughters, influenced by the American culture, give up the cookery practices that their mothers brought with them from Italy or some other European country. This one shift, because of increased interest in "saving" time, may have far-reaching nutritional effects, disturbing the balance of nutrients which characterizes the traditional diet.

It is rather interesting to speculate on the extent to which time to be given to meals and even to eating food has any bearing on the foods which are selected. To what extent, for example, do people choose a sandwich or doughnuts for lunch rather than soup, a grilled chop, a freshly prepared salad? Because it pleases their palate or is more nourishing or because the time given to the meal is less? Many restaurant and café managers, in arranging eating areas and in preparing menus, recognize the possibility of time costs being important to their patrons. There are counters for quick service and tables for more leisurely eating, and on menus foods are classified as those ready-to-serve and those requiring 10 or 15 minutes for preparation. The desire to save time and energy may operate to a point of increasing the preference for ground foods which require very little chewing. One wonders at times how else to account for the frequency with which such foods appear on menus. Or do some people have a greater preference for food merely because it has been worked over, fussed with, and changed from its original form?

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[14] *Op. cit.*, p. 148.

[15] E. L. Rhoades, *Merchandising of Packing House Products*, 1929, p. 131.

Availability of Food and Choice

It is an obvious fact that the existence of food in a convenient market affects foods chosen. Unless a product is available, consumers cannot get acquainted with it, and without experience in use there is not likely to be much desire. Moreover, those who previously used the product will find "satisfactory" substitutes for it and will cease to bring it within the range of alternatives considered in choosing. Corbett,[16] in a study of preferences for vegetables, asked consumers what vegetables they would like to have which they did not find in the markets where they commonly purchased. A few housewives had desires which the market did not supply.

Availability and choice constitute a two-way relationship. The presence of a food in the market depends to a large extent on the willingness of consumers buying there to pay for it, and this in turn depends on their relative desire for it, their incomes, and the cost of making the product available. Since cost to the seller is influenced by the volume of the product which can be sold, availability depends on the number of consumers in the market who are willing to buy the product at a particular price. Corbett, in the study referred to above, found that a few women mentioned that they would like to have vegetables which were not available in their markets. Corbett [17] comments:

> How much of a market could be developed for the uncommon products mentioned by these women is, of course, a matter of doubt. The quantity of a new product sold in the market is so small that it is expensive to produce and handle it. Therefore, consumers must expect to pay well for such a product.

It would seem highly desirable that the availability of fresh fruits and vegetables and a satisfactory quality of milk should be investigated in attempting to discover the reason for the low level of nutrition among many village and farm families. For them, availability of many foods is likely to vary greatly with the season.

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[16] *Preferences and Practices in Buying Vegetables in Providence, Rhode Island*, R. I. Agr. Exp. Sta. Bul. 220, 1929, p. 58.

[17] *Ibid.*

Attributes of Food

Flavor, odor, texture, color, form, temperature, food value, cleanliness are attributes which affect consumers' appraisal of a food. These attributes can in large part be measured objectively. But such measurement throws little light on whether consumers will or will not rate it high. The discovery of the importance of any attribute is a psychological problem, one of investigating attitudes, likes, and dislikes. Only when attributes can be measured and consumer likes or dislikes of them known, can the attributes be described as more or less acceptable.

Among food attributes there are few if any universally liked or disliked. For example, high color is favored in one product and not in another; that is, red in apples attracts American consumers but is not favored in bananas, a pale yellow in a lemon is favored over a bright green, and white celery rates higher than green. It is appropriate for one product to have a high color and for another to be pale, for one to be sweet and another to be sour. And natural color may not always be looked upon as appropriate. Green celery "must," for example, be bleached. It has been necessary at times to carry on educational campaigns to reduce prejudice against the high color of summer butter. Consumers may have associated the high color with an attempt to conceal inferiority of product.

Certain attributes, acknowledged in themselves to be unimportant, may come to be favored merely because they are assumed, sometimes mistakenly, to indicate the presence of a desirable quality. Color [18] in many cases plays a deceptive role. Butterfat in milk is favored. Many consumers are inclined to judge its presence by the color of the cream line. The premium paid in many cases for Guernsey or Jersey milk in contrast with milk from Holsteins is due largely to difference in pigmentation, which in no way affects food value or palatability.[19] Some markets show a decided preference for brown eggs and other markets a decided preference for white, although science has been able to show no difference in the eating quality of these eggs.[20] Such color preferences in some products have been shown to go back to a previous condition of the market when the color favored was associated with a food of superior eating quality. For example, the preference for white eggs, felt by some still to be apparent in the New York market, is looked upon as a carryover from the days when the eggs produced locally and, arriving on the market in a relatively good condition, largely were white; whereas many eggs shipped from distant communities were brown. With refrigeration and improved transportation, distance does not affect the eating quality of eggs to any great extent; yet traces of the prejudice remain. When such prejudices exist without "foundation," producers can recognize them and change their production practices, and shippers can direct products to markets in accordance with preferences expressed. Or an educational campaign may be carried on to wipe out existing prejudices.

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[18] Reliance on color is due in large measure to the fact that it is the one attribute readily revealed by inspection in the market.

[19] For general discussion of color in food see B. I. Masurovsky, "The Right Food Color," *Food Industries*, January, 1939.

[20] See, for example, R. I. Exp. Sta. Bul. 240.

The interest of nutritionists parallels that of sellers in that they may want to know what attributes of foods interfere with or promote consumption. Their interest is not confined to market foods, and probably more frequently they recognize food preparation as a factor. There is the question, for example, of whether lack of low-temperature storage or the belief that milk is not clean interferes with milk consumption on farms where a plentiful supply is at hand; or whether failure to eat an adequate quantity of vegetables can be laid to ignorance of cookery methods and subsequent failure to prepare them in a way acceptable to the family. Dickens,[21] for example, found:

> Of all the food classes, there were more dislikes in the vegetable group than in any other. . . . Of the vegetables commonly used in Mississippi, cabbage and turnips were the ones most often disliked. Twenty-six people record disliking cabbages, while twenty-five record disliking turnips. Dislikes were probably formed not because these vegetables are strongly flavored, but because those vegetables which the majority of people had tasted were poorly prepared. . . .

Preparation suitable for adults may not be suitable for children. Lowenberg found that young children accept well-cooked vegetables of mild flavor more readily than those of high flavor and firm texture.[22]

Cookery methods may have an important bearing on national food habits. Drummond and Wilbraham, in writing of *The Englishman's Food* of the 19th century, say:

> When we acquired from the Continent the knowledge how to grow garden vegetables we did not trouble to learn how to cook them properly.

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[21] D. Dickens, *A Study of Food Habits of People in Two Contrasting Areas of Mississippi,* Miss. Agr. Exp. Sta. Bul. 245, 1927, p. 8. See also S. C. Agr. Exp. Sta. Bul. 260, 1929, and 268, 1930, for reports on extensive dislikes for vegetables and for the possible basis of their being "injudicious" preparation.

[22] M. Lowenberg, *Food for Young Children,* 1939.

This failure they look upon as "one of the major tragedies of English domestic life." [23]

Attitudes to Food

Any modification of consumer habits should take into account psychological laws. Psychologists have attempted to explain human behavior in many ways. Motives, conceived as impelling forces, at one time were much emphasized. Comprehensive lists of motives, some long and some short, have been developed. In most cases, however, many types of behavior can be lumped together under one motive. McGregor believes that "motives emphasize the common features in behavior patterns and ignore the differences." [24] In recent years explanation of behavior has concentrated more upon habits of persons and on the cultural patterns of peoples. In place of starting with the motive and working out to the behavior likely to follow, one can start with behavior and search for the forces shaping it. An acquaintance with psychological analysis, from the standpoint of motives, habits, and culture, is important to an investigator of food habits.

Attitudes toward foods must be studied in terms of purposes that food serves and ideas people have concerning the relation of foods to these purposes. The human purposes that food serves to be discussed are physiological, social and sensory and aesthetic.

Attitudes to Physiological Needs

Investigations to date give little indication of the relative desire for health and other satisfactions to be derived from food. How much aesthetic and sensory enjoyment from food will people forego, or to what extent will they refuse to conform to social customs, in order to consume only those foods that are "good for them"? Is the overeating or high consumption of specific foods which contribute little to health to be laid to ignorance or to emphasis on sensory and aesthetic pleasures? Certainly some women, when slimming, blithefully ignore the dangers of malnourishment.

Some guesses have been made concerning the relative importance of the desire for health as a motive determining food choice in our culture as a whole. Hoyt in her book, *Consumption in Our Society*, [25] says:

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[23] J. C. Drummond and A. Wilbraham, *The Englishman's Food*, 1940, p. 396.

[24] "Motives as a Tool of Market Research," *Har. Bus. Rev.*, Vol. 19, autumn, 1940, pp. 42–51.

[25] *Op. cit.*, p. 299. It should be pointed out that the technological interest, as it is defined by Hoyt, may express itself in other ways than in giving a preferred position to foods which contribute to health. For example, it may be partly responsible for the pleasure which people get in the elaborate decoration of food and in ingenious and unusual forms of foods, such as Baked Alaska.

> We share with Western Europe the Roman heritage of the ideal of conquering the forces of nature, adapting the environment, gaining power over the material world. . . . We have called it the technological ideal or interest. The American people . . . have pursued it more vigorously and carried it to further lengths than any nation of the Western Tradition.

A writer in *Fortune* apparently feels also that the health motive has great weight in determining choice of food:[26]

> U. S. food habits are as motley as the national strains of its people, but the strongest influence is Anglo-Saxon. From his English fathers, the American inherited, along with the language, a passionless attitude toward eating. . . .
>
> The willingness to eat not for pleasure but for health is doubtless due to a fundamental U. S. trait, the fear of being sickly. . . . Perhaps in England, but certainly not in France or Spain or Germany or Russia will you find people so anxious to believe that by eating a certain way they can achieve the life buoyant and abundant. Here it is the gourmet who is a curiosity, the dietitian who is a prophet. . . .
>
> Rarely for pleasure but for speed, swank, thrift, pride, or health are metropolitan eating habits gauged.

A little insight into the relative importance of various motives is suggested by the data in Table 34, where is shown the percentage of a selected group of food advertisements having specified appeals. From this it would

Table 34. The Percentage of Advertisements of Food Products Making Certain Appeals in the Text of Advertisements in Selected Magazines, 1935 *

Appeal	General and Women's Magazines	Farm Magazines
Will be enjoyed	77.5	84.2
Saves time and energy, is easy to use	34.5	36.3
Restores, maintains health	33.9	47.9
Ensures comfort	7.1	14.3
Worker may excel in accomplishment	4.3	14.0
Is stylish, smart, modern	3.0	0.0
Ensures safety	1.3	1.9
Helps to get or hold a husband	0.7	2.1
Is in good taste	0.6	0.8
Is beautiful or makes for beauty	0.5	0.0

* M. G. Reid, *Consumers and the Market*, 1938, p. 308. See pp. 285–6 for explanation of the study.

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[26] "The Wonders of the Diet," *Fortune*, May, 1936, pp. 86 and 88.

appear that sensory motive has a great influence on consumer choice and that health and economy rank second. The great importance of the sensory appeal in these advertisements cannot be considered entirely accidental. Appeals most likely to influence potential buyers are carefully appraised by many advertisers. These advertisements, however, were designed to sell one brand rather than one food in place of another. It is probably less difficult to convince consumers that a brand has a unique flavor or some other unique quality affecting palatability than that it has unique food value.

Because of a desire for health, consumers may take a negative attitude toward some foods. One wonders, for example, if widespread discussion of arsenic on apples, with warnings that they should be peeled before being eaten, and extensive discussion of poultry diseases in any way affect consumer attitude toward these foods.

It seems especially important at the present time to get some understanding of the relative importance of health and other things desired by consumers, in order to select suitable appeals in bringing about a modification of many food habits. Life is more than health. Overemphasis of health may bring a negative reaction. Such a reaction may also be avoided if good health can be given social as well as individual significance, as is being attempted by making better nutrition a part of the defense and war program.

Attitudes to Social Evaluations

Customs and conventions embody group ideas of what is socially acceptable and desirable. They are very important factors affecting the choice of individuals who seek to identify themselves with the group and who fear social disapproval or being thought queer.[27] Customs, like habits, often interfere with new experience. On the other hand, they may help some individuals to new experience, courage being derived from group acceptance. Many customs are accepted without question and become rooted in habits. Since an established custom carries an implicit assumption of welfare, the absence of customary foods is likely to bring a strong sense of privation.[28]

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[27] For an interesting study see K. Duncker, "Experimental Modification of Children's Food Preferences through Social Suggestions," *J. Abn. and Soc. Psy.*, Vol. 33, 1938, pp. 489–507.

[28] Social customs include taboos concerning "dangerous" foods that should be avoided at all times or at certain times. There are, for example, some Indian tribes in South America where the people regularly eat clay without injurious effects. In other tribes it is looked upon as injurious and when eaten the feared injurious effects appear to follow. The question arises whether the bad effect is a matter of physiology or whether the taboo has the power to create a mental state of expectation that, in event of the violation of the taboo, induces the dreaded results.

Some foods may be symbols of age and virility. It is not uncommon, for example, to find milk being refused because it is considered suitable only for children and invalids. This feeling may account for the increased frequency with which dislike for milk is reported with increase in age. The findings of a Vermont study are shown in Table 35.

Table 35. The Relation of Age to Dislike for Milk as a Beverage *

Age Groups (in years)	Number of Individuals	Percentage Not Drinking Milk	Percentage Not Drinking Who Report a Dislike for Milk
1–5	1,378	7.5	21.2
5–10	1,569	13.3	27.8
10–16	1,590	19.5	30.3
over 16	10,421	48.9	63.1
Total	14,958	38.2	59.2

* H. B. Ellenberger and J. T. Stearns, *The Consumption of Dairy Products in Burlington, Vermont, 1935–36*, Vt. Agr. Exp. Sta. Bul. 433, p. 11. "Expense" was the other important reason for not drinking milk. It decreased in importance with increase in age. In other words, most children under 5 years of age drank milk. Expense was the major reason given for the few who did not drink it. Nearly one-half of those over 16 years of age reported that they did not drink milk. Dislike for milk rather than expense was the major reason given.

Symbols of economic status are related to cost; hence they differ greatly from time to time. For example, white bread was at one time the bread of the rich, and brown or black bread that of the poor. To eat white bread was to rise in the social scale. In some American communities whole-wheat bread is now found more commonly on the tables of the rich than of the poor. Dairy products were at one time the poor man's food;[29] quality in this case was, according to present standards, very low. Social status at the present time probably affects attitude to margarine versus butter, brussels sprouts versus cabbage, stew versus steak.

Certain foods in every society are symbols of hospitality and even of morality. The significance of foods may differ greatly from group to group. Among some people, for example, the serving of wine may be an expression of hospitality and an essential part of certain ceremonies. To other people its use at any time symbolizes depravity, indulgence, and social irresponsibility. Many religious groups have rules regulating the consumption of certain foods. At one time these rules may have had an important bearing on health. In some cases they may have served to check overindulgence, and in still others to have symbolized sacrifice or celebration. Emulation, the desire for prestige or to impress others, may lead people to use expensive foods or those involving much labor in home preparation or may stimulate an interest in the latest food fad. Emulation is likely to be most influential on social occasions when guests are present. The nature of the occasion and the status of the guests, of course, will be very important factors.

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[29] See, for example, J. C. Drummond and A. Wilbraham, *The Englishman's Food*, 1939, p. 51.

Customs imposed by religious regulations are especially binding and may continue to be important even though the people have officially separated themselves from observance of religious rules. For example, Atwater made a study of the dietary habits of unorthodox and liberal Russian Jews living in the United States. The diet of liberal Jews was presumably not governed in any way by the Jewish law. But the Jewish families nevertheless appeared to have retained their antipathy to pork and their preference for front-quarter cuts of beef.[30]

The Jewish dietary law says that on the Sabbath and on other holidays that have religious significance the Jew shall eat food which might be called a luxury. A study made in New York City revealed that, for families of similar size and income, 83 per cent of the Jews, 56 per cent of the Negroes, and 51 per cent of the native white families bought poultry at least once in the week of record.[31] An extreme case of religious restriction affecting food consumption is reported by Warriner[32] for Eastern Europe:

> A powerful influence on the consumption habits of the population is exercised by the Church both in Poland and Rumania. About 170 days in the year are fast-days on which no meat may be eaten. Consequently the peasant is inclined to regard extra consumption of eggs or meat as morally unjustified and will not attach much importance to increasing his own consumption.

Studies of food preferences among racial groups coming to the United States show the strength of custom and tradition. Phillips and Howell in 1917 and 1918 studied a group of 105 low-income families, many of whom were Italian. At this time prices of food and other products were rising sharply; yet they found:[33]

> Not only have prices jumped beyond the reach of many of these families, but their customary foods were suddenly cut off by the war.

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[30] W. O. Atwater and A. P. Bryant, *Dietary Studies in Chicago in 1895 and 1896,* U. S. Off. Exp. Sta. Bul. 55, 1898, p. 36.

[31] Adjustments were made for differences in income and size of families. Data were secured in March and April, 1935. A house-to-house canvass was made of more than 8,000 families. See U. S. Dept. of Agr. Misc. Pub. 283, 1937.

[32] Warriner, *Economics of Peasant Farming,* 1939, p. 89.

[33] Racial and Other Differences in Dietary Customs," *J. H. Ec.,* Vol. 12, September, 1920, p. 397.

> Roman cheese and olive oil have been considered a necessity in the poorest of Italian families. When Roman cheese rose to $1.25 a pound and olive oil to $4.00 a gallon, it [*sic*] was still considered an essential and the investigator found in the poorest homes, Italians suffering from cold and lack of food, buying 1 and 2 ounces of Roman cheese and small quantities of olive oil.
>
> Almost two thirds of these 105 families whose diet was studied for one week were receiving less than the standard fuel requirement. Cereals, the cheapest fuel foods, may be within their reach but they have not learned how to prepare them nor how to eat them. When wheat, fats, and other foods to which they were accustomed are beyond their reach, there is serious danger of increasing malnutrition characteristic of low income families.

Housewives buying cheese at $1.25 a pound bought no milk at all because they thought that it was too expensive.[34] The investigators suggested that demonstrations be given in the homes to teach people new uses of foods.

The strength of national custom is also clearly shown in a recent study of the consumption of fats and oils in the city of Minneapolis. Families of Scandinavian origin with annual per capita income between $300 and $599 had a per weekly per capita consumption of 0.70 pound of butter and 0.01 pound of salad oil; while those of the same income group, but coming from Southern Europe, consumed 0.44 pound of butter and 0.33 pound of salad oil.[35]

In spite of rapid, inexpensive transportation from coast to coast, one finds over and over again in America the traditional dietary patterns of European countries from which the parents or grandparents migrated. The food of Milwaukee families, for example, is in many ways very different from that of families in St. Paul. The colonial diet persists in Boston, and New Orleans shows the effect of a very different tradition. Southern food habits continue among Negro families in New York City.[36]

Breaks, sometimes very sharp, occur in custom. Little is known of the process by which a family selects substitutes to fill the gap made when customary foods are no longer available. Some studies do indicate that families migrating from Europe have selected some foods more readily than others. But the combination of the new and the old may be far less satisfactory than their earlier diet or American food customs as a whole, both of which having in some measure stood the test of time.

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[34] *Ibid.*, p. 411.

[35] W. C. Waite and Rex W. Cox, *A Study of the Consumption of Fats and Oils in Minneapolis, 1938,* Minn. Agr. Exp. Sta. Bul. 344, 1939, p. 14.

[36] See "Food Expenditures of Wage-Earners and Clerical Workers," *Monthly Labor Rev.,* August, 1940.

Mudge found, for example:[37]

> A larger use of grain products other than bread is greatly needed in the Polish dietaries, few cereals being used in any of the families studied. This is in striking contrast to the food habits in the mother country where not only black bread but rice, macaroni and whole grains, which are home-milled and eaten with milk, are staple articles of diet. . . .
>
> Too large a proportion of the expenditure was invested in meat. . . . In Poland little meat other than salt pork is available for the peasants except at Christmas time and other holiday celebrations. It is to be feared that the Polish diet has become too much "Americanized" in this respect.
>
> Leafy vegetables, except cabbage were not used; spinach, lettuce and other greens are not well known in the old country.
>
> As might be anticipated with the limited use of vegetables the Polish dietaries showed a startling deficiency in iron.

Mudge points out the effect of availability on the national food habits of Italian families in certain American cities. Families whose dietaries were not Americanized were more readily found in New York City and Boston, where Italian markets were more accessible, than in Detroit where it was very difficult to find families to include in her study who had clung to their former national diet.[38]

Attitudes to Sensory and Aesthetic Needs

Sensory stimuli and aesthetic satisfaction are important factors in the consumption of food. Flavor, odor, texture, and appearance of food all are important.[39] Science has little to contribute to explain consumers' reaction. Without doubt it is socially conditioned. A study of the diets of many people would lead one to conclude that the desire for variety and contrast is universal. However, the repeated appearance of rice and potatoes on the menu would bring a very different response from American than from Chinese families.

Desire for variety probably has its roots in both sensory and aesthetic appeals. The use of certain foods day-after-day dulls the desire for them more rapidly than for others. Potatoes, milk, eggs, and even beef may appear every or almost every day in the diet of even the well-to-do American family with little or no marked urge to change. Variety is introduced in the method of preparing them and by other foods on the menu. The time interval in the consumption of foods varies greatly. It is affected, of course, by seasonality of the product. If products are available the year round, market conditions do not promote consumers' going on a jag, as it were, induced by the appearance of the product in the market at a price within their reach. Once the edge is taken off the appetite, and this may occur very quickly, demand for the product may drop. It seems probable that this occurs with some of the fresh fruits. For example, a study of the watermelon market reports:[40]

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[37] G. G. Mudge, "Polish Dietary Studies," *Modern Hospital,* Vol. 22, May, 1924, pp. 503–4.

[38] "Italian Dietary Adjustments," *J. H. Ec.,* Vol. 25, April, 1923, p. 182.

[39] For an interesting discussion of attributes of food affecting flavor see B. M. Watts, "Flavor in Food," *J. H. Ec.,* Vol. 31, December, 1939, pp. 673–9.

> For each of the 6 seasons, 1926–1931, when the cumulative shipments reached approximately 10,000 cars, the reported market-price average at New York City dropped below $450 and remained below that point for the remainder of the season. From the $450 point the price in general continued its downward trend to the end of the season as the volume of cumulative shipments increased regardless of the diminishing daily supplies.

Some foods with pronounced flavors and high odors, such as pickles and sauces, high in acid, salt, or spice, seem to be a universal phenomenon. They are especially important if the flavor of the bulk of the food is rather bland. Note, for example, the pickled vegetables of China and the soy bean sauce of Japan. Sensory stimulation appears to be an important reason for their prominence in the diet. The balance of bland and highly flavored food in various diets differs greatly.

Desire for sensory stimulus in food seems also to be associated with physical fatigue and strain. Thus pleasing odor, flavor, and color combinations are not dependent on the food alone. They are influenced by the psychic and physical state of the individual, whether he comes home fagged from the office after a day devoted to irritating details and frictions or ravenous from the golf course, at which he played a stunning game.

In commenting on the factory girl's preference for unwholesome and inadequate lunches, Van Vorst, after working as a mill hand for some time, said,[41]

> I am beginning to understand why the meager lunches of preserve-sandwiches and pickles more than satisfy the girls whom I was prepared to accuse of spending their money on gewgaws rather than on nourishment. It is fatigue which steals the appetite. . . . I did not want wholesome food, exhausted as I was. I craved sours and sweets, pickles, cake, anything to excite my numb taste.

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[40] J. W. Strawbridge, *Origin, Distribution and Market Price of Commercial Watermelon Crop,* U. S. Dept. Agr. Tech. Bul. 398, 1933.

[41] B. Van Vorst, *The Woman Who Toils,* 1903, pp. 39–40.

Some studies have shown that the diet of home-economics college students, as they pass from freshman to senior status, includes increasing amounts of coffee, Coca-Cola, chocolate bars, sundaes, and other such foods.[42] Some people lay the change to the girls' need for foods to overcome a sense of fatigue and restore zest and animation.

Sensory and aesthetic response to food cannot be understood apart from the physical and mental outlook of consumers, cookery methods used, and physical and social environment in which the food is consumed. Sensory and aesthetic enjoyment, on the one hand, may be enhanced by the belief that the food being consumed is good for one or, on the other hand, the feeling that one is limited by the need of eating only what is good for him may induce a state of rebellion that removes all zest from eating. A listing of conditions affecting sensory and aesthetic satisfaction might be continued *ad infinitum.*

Research in Food Preferences and Habits

Research in food preference is concerned with two questions: What are preferences and what factors affect them? Preference relates both to classes of foods and to the color, form, and other characteristics of a particular food. The nutritionist in many cases is interested primarily in relative preference for basic foods. She needs to know what people like and are accustomed to if she is to plan diets around those factors, thus minimizing resistance that might arise if an attempt were made to change greatly long established habits. Adequate diets most times can be secured within the pattern of foods that are quite acceptable. It may be important, however, to change preferences in order to get people to eat an accepted food in larger volume or in order to introduce new foods which are important in getting an adequate diet at low cost.

To change preference it is important to have some understanding of the attitudes that lie behind them. Food preference can be studied by finding out what people eat. Research methods for securing this type of data will be discussed in Chapter 14. It seems highly probable that much light can be thrown on factors affecting preference by systematic study of circumstances affecting individuals with a given pattern of food habits. Consumer units may be classified according to income, food expenditure, and relative prices of various foods; number, age, sex, and state of health of the family members; and national origin, shopping habits, length of time spent in food preparation, kind of cooking equipment available, formal education, radio-advertising programs listened to, participation in adult-education programs, and many other things.

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[42] M. E. Holme, *Nutritional Status of Iowa State College Women,* unpublished thesis 1938, Iowa State Coll., and M. S. Reynolds *et al.,* "The Dietary Habits of College Students," *J. H. Ec.,* June, 1942, pp. 379–84.

Apart from getting information on food consumption on a daily, weekly, or annual basis, information on food preference can be studied in several ways. The suitability of the various methods depends on the information sought.

The behavior of consumer-buyers in retail stores may be observed. An investigator may note the questions which they ask concerning the product, the things they look for in inspection, the way they are influenced by signs and the location of products, and the qualities and quantities purchased at various prices. Consumer preference for apples, for example, was studied in this way in Michigan.[43]

Detailed statistics from marketing agents may be secured on attributes in relation to price and volume. In this way, relative preference for certain quality and the influence of certain sale conditions can be studied.[44]

An experimental situation may be set up in which a new food is introduced; for example, several flavors of ham may be served.[45] In a more limited way, preference can be studied by offering paired samples to people and asking them to state their preference. In a recent study, for example, paired samples of cheeses were served to approximately 7,000 men and women in different parts of the country.[46] In such cases the setting in which the food is consumed is artificial and no indication is given of the quantity that would be consumed.[47] In the same study several varieties of uncooked cheese were introduced into regular luncheon menus in certain institutions, and the consumption was studied. The display of two or more samples is used in discovering what form of label or container, for example, is likely to bring the largest sale.

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[43] H. P. Gaston, *Consumer Demand for Apples in Michigan,* Mich. Agr. Exp. Sta. Special Bul. 209, 1931. The outstanding finding of this study was the premium which consumers paid for red color in apples. See also M. I. Liston, *A Study of Quality Demands in Household Buying of Food,* Vt. Agr. Exp. Sta. Bul. 415, 1937.

[44] The following are examples of this type of study: G. B. Clarke and R. G. Bressler, *Price as Related to Quality in the Connecticut Strawberry Auctions,* Conn. Agr. Exp. Sta. Bul. 227, 1938; A. R. Gans, *Relation of Quality to the Retail Price of Eggs in New York City,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 597, 1934; A. H. Lindsay and H. W. Yount, *Relation Between Egg Quality and Price,* Mass. Agr. Exp. Sta. Bul. 282, 1932; H. I. Richards, *Marketing Live Broilers in New York City,* N. H. Exp. Sta. Bul. 234, 1928; R. S. Besse and M. R. Cooper, *Oregon Apple Prices by Variety, Grades and Sizes, 1922–1926,* Ore. Exp. Sta. Bul. 244, 1929.

[45] Following a food preference study of this type, Swift & Co. decided to change the flavor of their ham. The study showed that a mild flavor was preferred.

[46] A. Hobson and M. A. Schaars, *Consumer Preferences for Cheese,* Wis. Agr. Exp. Sta. Res. Bul. 128, 1935.

[47] The need for care in controlling the conditions of such experiments is brought out in a study of ice cream preference. Consumers who happened to be in stores were requested to note the flavor carefully with respect to temperature. Results showed conclusively that in the consumer's opinion there is a direct relationship between flavor and serving temperature. Ice creams at a temperature of 10 degrees and above were described by consumers as having a true flavor, while

Certain restaurants have experimented with second helpings, giving a second serving of any food on the menu without cost. It was found in some cases that people more frequently asked for a second helping of dessert than for more soup, meat, or vegetables.[48]

In some cases it has seemed desirable to question people about their attitude to various foods without providing samples among which to choose. Many such studies attempt to probe not only into the existence of preferences but also into the "why" of them.[49] The discovery, through questioning, of factors affecting preference is a highly complex procedure, and the "findings" of many studies attempting it have little or no value. Under the heading of Facts versus Fancies, Link says:[50]

> The thesis of modern psychology is that the most reliable measure of people's thoughts, feelings and preferences are the overt acts in which they express themselves; and that asking people why they have bought certain articles is about the least reliable method of discovering the true reasons. The individual's explanation of his behavior is too often an imagined one to permit its uncritical use.

As far as possible investigation should concentrate on objective facts rather than on data about subjective states and experiences. Information given by individuals about their subjective states and experiences may be either meaningless or definitely misleading. Where attempts are made to study subjective states, special care must be taken in framing questions and in interpreting replies if knowledge of motives is to be increased.

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the colder ice creams were described as lacking in flavor. W. H. E. Reid, "Increasing Consumer Preference for Ice Cream," *Ice Cream Review,* December, 1938, p. 29.

[48] See L. B. Mendel, "The Changing Diet of the American People," *J. Am. Med. Ass.,* Vol. 99, p. 117. On first impulse one might be inclined to conclude that desire for dessert is relatively less satisfied by ordinary servings than is the desire for other foods. But a second serving of dessert may be requested merely because dessert is the final course. Until it is consumed, there is always the possibility that the usual servings will be adequate. The consumer having had dessert, because of his sense of the aesthetic combination of food flavors, may not care to return to soup, meat, or vegetables.

[49] See, for example, R. B. Corbett, *A Study of Consumers' Preferences and Practices in Buying and Using Eggs,* R. I. Agr. Exp. Sta. Bul. 240, 1933. E. H. Rinear, *Consumer Preferences for Potatoes,* N. H. Agr. Exp. Sta. Cir. 37, 1931; H. H. Bakken, *Consumer Preferences for Potatoes,* Wis. Agr. Exp. Sta. Res. Bul. 124, 1934; R. B. Corbett, *Preferences and Practices in Buying Vegetables in Providence, Rhode Island,* R. I. Agr. Exp. Sta. Bul. 220, 1929.

[50] *The New Psychology of Selling and Advertising,* p. 21.

Ordinary "why" questions have come in for a great deal of criticism because they elicit answers which are "vague," "meaningless," and "misleading." A few examples drawn from recent food studies will readily reveal the reason for such criticism. In 1928 and in 1932, two groups of consumers were asked why they "did not use any more eggs." The investigator discovered that 76 per cent and 85 per cent in 1928, and 86 per cent and 100 per cent in 1932 "did not wish more."[51] The major reason for using eggs was that people liked them, they were considered healthful, and they were convenient to prepare.

An attempt is also made to discover preference by asking people to describe their preferences and to give basic reasons for likes and dislikes. Of this technique, Hobson[52] states:

> One may ask individuals what kind of cheese they like best, but too often they do not know, or lack a sufficiently standardized vocabulary to describe their preferences. The answers to certain questions indicated that most people are not cheese conscious. Their views regarding likes and dislikes for cheese were rather hazy.

When samples can be shown and consumers asked to indicate their preference, they are not handicapped by lack of vocabulary.[53] It should be recognized, however, that people in such a circumstance may express what they think is the socially accepted preference. Inaccuracies, arising out of pride, occur.

In place of asking people to explain their behavior, it may be better to list conditions which the investigator thinks may be influencing behavior and to ask consumers what they would do if certain conditions were changed. This appears to have been done with fair success in some studies.[54] Relative difference between groups in different circumstances will be more revealing than any figure for a single group.

A survey of research that attempts to discover forces shaping demand, calling for an expression of subjective condition of consumers, shows clearly that questions to be enlightening must be formulated by some one with a lively imagination. Familiarity with the situation of the group being studied is important. Exploratory studies, involving extensive discussion of representative members of the group and ranging freely over many topics, are important in developing suitable hypotheses. The investigator in his imagination must see the product through the eyes of the group he is studying. Shrewd guesses are necessary as to possible factors and questions must be phrased carefully if consumers are to have an opportunity to indicate what is important to them. Questions can be phrased that will do much to reveal the importance of various factors, including likes, dislikes, prejudices, and kind of propaganda to which people are exposed. Search should be concentrated on the forces that cause people to do one thing in place of another. Although the matter is now receiving much attention, it is highly probable that considerable effort for some time will need to be given to devising special techniques and framing suitable questions which do not suggest answers or which do not lead to rationalization and yet are within the scope of the imagination and experience of the individual.

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[51] R. B. Corbett, *A Study of Consumers' Preferences and Practices in Buying and Using Eggs,* R. I. Exp. Sta. Bul. 240, p. 25.

[52] *Op. cit.,* p. 16.

[53] For example, E. H. Rinear, *Consumer Preferences for Potatoes,* N. H. Agr. Exp. Sta. Cir. 37, 1931; H. H. Bakken, *Consumers Preferences for Potatoes,* Wis. Agr. Exp. Sta. Bul. 124, 1934.

[54] G. P. Boucher and W. C. Hopper, *An Economic Study of Cheese Consumption in Certain Urban and Rural Districts of Canada,* Dominion of Canada, Dept. Agr. Pub. 658, Tech. Bul. 22, 1939; and C. I. Johnston and W. C. Hopper, *An Economic Study of the Consumption of Milk and Cream in Vancouver,* Dominion of Canada, Dept. Agr. Pub. 678, Tech. Bul. 25.

Interest in research in this field is increasing. In 1940 the Committee on Food Habits was set up by the National Research Council. "The committee . . . was asked to explore ways and means of adjusting food habits to needs—of getting people to wish what they need." [55] Existing food habits, forces which have shaped them, and things which are more affecting them are to be studied. Special attention is given to methods of studying food habits.

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[55] H. K. Stiebeling, "The National Research Council's Committee on Food Habits," *J. H. Ec.*, October, 1941, p. 541.

11

Dynamics of Food Preferences and Habits

CHANGES in food preferences and habits take many forms and are the result of many factors. Philosophies pertaining to food would make a fascinating story by themselves. On the one hand has been the Epicurean philosophy, stressing the full life providing varied experience, with artistry in food preparation and consumption receiving much attention; on the other has been great stress on fasting, simplicity, and self-denial of food along with other things.

In the discussion in Chapter 10 many factors affecting food preferences and habits were considered. Here attention will be concentrated on changing physiological needs and population, the introduction of new foods, changing technology, and the influence of education. In the chapter which follows, changes in American food habits will be described. The effect of changes in income and food prices will be considered in some detail in later chapters.[1]

Changes in Physiological Needs

Need for food is by no means static. Recent changes in American life affecting food needs include:

1. A shift of a large part of the population from out-of-door, heavy, physical labor to quasi-sedentary, indoor occupations.
2. Introduction of machines, reducing the muscular effort required even in such occupations as farming.
3. Shorter hours of work.
4. Increased use of automobiles, reducing the amount of walking.
5. Increased central heating.*
6. Lighter weight clothing.*
7. Increased importance of recreational activities of the less vigorous type.
8. Higher nervous tension, often looked upon as a characteristic of our culture.
9. Increase in height and weight of stature.

* It seems highly probable that these two are related to each other more than they are related to food consumptiion.

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[1] For discussion of the influence of advertising see Chapter 23.

In addition ideas concerning desirable body form have changed.

Rigorous dieting, affecting a considerable number of women, may have resulted from 1920 to 1933 because of the vogue for the straight-line silhouette, marked by slim hips and flat breasts. Curves now appear to be staging a partial comeback. During the middle thirties it was reported that certain cinema stars were given permission to increase their weight by 5 pounds.

The findings of a few dietary studies concerned with change in food intake are of interest. Coons and Schiefelbusch,[2] after investigating the diets of college women, concluded that the protein and calorie ingestion of college women during the past forty years indicated "that either the methods used by earlier workers were gravely in error or the present tendency is strongly in the direction of habitually lower food consumption among college women." A study made in 1917 of the food consumption of 115 persons, including 91 college students, reports an average daily consumption of 2,698 calories;[3] whereas 28 Vassar girls in 1935 were found to consume on the average daily 2,397 calories.[4]

Changes in height and weight have been receiving a good deal of comment in certain quarters. A comprehensive study was made by Bowles, *New Types of Old Americans at Harvard and at Eastern Women's Colleges.* A comparison of the height and weight of fathers and sons who attended the University of Harvard revealed that the fathers at 21 years of age averaged 143.5 pounds in weight and the sons averaged 151.4 pounds.[5] The fathers were 173.3 cm. in height and the sons 177.2 cm. A comparison of height and weight of mothers and daughters who attended Wellesley revealed much the same change taking place in women as men. Wellesley mothers at the age of nineteen years averaged 120 pounds while their daughters at the same age averaged 124.7 pounds; the mothers measured 160.7 cm. in height while the daughters measured 164.0 cm.[6] Weights of the female students included indicated that an average annual increase of 0.10 pound [7] had been occurring. For male college students an average annual increase of 0.21 pound [8] was indicated.

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[2] "The Diets of College Women in Relation to Their Basal Metabolism," *J. Nutrition,* Vol. 5, 1932, p. 460.

[3] A. L. MacLeod and M. A. Griggs, "Dietary Study at Vassar College," *J. H. Ec.,* Vol. 10, 1918, pp. 97–107. The inventory method was used and all edible and inedible waste was subtracted.

[4] R. Wheeler and R. Mallay, "A Study of Food Freely Selected by a College Cooperative Housekeeping Group," *J. Am. Diet. Ass.,* Vol. 10, 1935, pp. 453–8. A great many other studies have been made of the food consumption of college women, but it is difficult, because of variation in method used and differences in location and selection of the girls studied, to get from them a clear-cut picture of trends in food consumption. Several of the studies made during the 1920's apparently include a number of students who were underweight.

[5] Bowles, *op. cit.,* p. 19.

[6] *Ibid.,* p. 99.

The increase in height and weight over preceding generations is not confined to college students. For example, the height of Swedish recruits from 1841 to 1870 showed an average annual increase of 0.077 cm. The height of adult Danes from 1852 to 1905 showed an average annual increase of 0.069 cm.; and 19-year-old Dutch conscripts from 1863 to 1925 showed an average annual increase in height of 0.17 cm.[9]

Population Changes

The total food needs of a country are affected by changes in the size of the population. Food needs, in addition, are affected by the changing composition of the population quite apart from change in numbers. Important changes in the composition of the population of the United States have been occurring. Improvements in medical care and sanitation along with better feeding practices have aided in bringing a sharp decrease in infant death rate. More children grow to maturity. At the same time the birth rate has been sharply declining. Children born in the period when birth rate was still relatively high are now reaching maturity. Thus the ratio of adults to children in the population is relatively high, and the average age of the adult population is increasing. In 1910 and 1940 approximately 42 and 35 per cent, respectively, of the total population of the United States was under 20 years of age; and 11 and 8 per cent, respectively, were under 5 years of age. The proportion of those over 65 years of age has risen from 4 per cent in 1900 to 6 per cent in 1935, and by 1980 is expected to be approximately 15 per cent.[10]

Such changes in the population affect food needs; for example, energy needs per person are especially high in adolescence and relatively low after the age of 30 years. The need for calcium is also relatively high in the early growth stages.

The place of residence of the population has also been changing rapidly. The proportion of the population living in cities has been increasing. This shift is likely to affect energy needs. More hours per day are likely to be spent within doors, and smoke to a greater extent is likely to shut off the sun rays; so the need for Vitamin D in food is increased. Basic foods are now almost wholly secured from the market rather than from the farm and the garden. The effect of this difference has already been considered.

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[7] *Ibid.,* p. 113.

[8] *Ibid.,* p. 45.

[9] *Ibid.,* pp. 33–5.

[10] See National Resources Committee, *The Problems of a Changing Population,* 1938, p. 25.

New Foods Appear

New foods appear. What reception awaits them? The history of various foods contains many points of interest. The Irish potato, introduced into Europe from America, had a hard struggle getting established. "In spite of many efforts to encourage its cultivation . . . nearly two hundred years passed before it became a field crop."[11] One promoter, attempting to introduce it, "pointed out how easily the tubers could be grown by the poor people so that when corn was dear they would have a good cheap substitute from which to prepare both bread and cakes. . . . He gave many recipes for making the latter, and strove to overcome the popular belief that potatoes were indigestible."[12] In France in 1773, a pamphlet was published that aroused an interest in potatoes. Even then it was difficult to induce people to believe that potatoes were edible and, in order to publicize the tuber, King Louis XVI of France wore potato flowers in his buttonhole and ordered potatoes served on the royal table.[13] Tomatoes, too, were widely used among the American Indians, but Europeans, seeing that the plant belonged to the Nightshade family, concluded that the fruit would be poisonous. The plants were cultivated merely for the ornamental nature of the scarlet fruits or as curiosities. By 1850 tomatoes were finally recognized as edible by Americans.

> Once it was found that they were not poisonous, but on the contrary were most excellent and valuable food, the love apples soon became popular and were everywhere cultivated as essential plants in kitchen gardens. . . . Then, almost as if by magic, vast fields of tomatoes were the order of the day.[14]

Verrill has some very interesting stories to tell of the ready acceptance by explorers and early settlers of many native foods. In such cases the need for food was very urgent, and suitable methods of preparation could readily be discovered. He also reports instances where the food was accepted only after a very long time and also where native foods for one reason or another are still not assimilated into the range of foods acceptable to the American people.

New foods, it would seem, should encounter decreasing difficulty in becoming accepted. Science in large part can remove the fear that the food may be harmful. Since the markets of any large city are overflowing with a great variety of food, many people are accustomed to a wide range of flavors, textures, and other attributes affecting palatability. Desire for change, for novelty, is important at least in some parts of American culture. Relative abundance puts less pressure, however, on people to try new foods a sufficient number of times to develop a liking for a new flavor.

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[11] J. C. Drummond and A. Wilbraham, *The Englishman's Food*, p. 29.

[12] *Ibid.*, p. 114.

[13] A. H. Verrill (in collaboration with D. W. Barrett), *Foods America Gave the World*, 1937, p. 29.

[14] *Ibid.*, p. 40.

During recent years the reception accorded new foods indicates clearly that the way is easy for some and hard for others. In general it appears that the greater the similarity of flavor, texture, and other attributes of a new food to foods already in the diet, the more readily it will be accepted. During recent years the rapid acceptance of canned fruit and vegetable juice probably can be accounted for, by acquaintance with home-prepared juices and similarity in flavor to fruit plus their ease of preparation.

Knowledge of a satisfactory method of preparation is essential. A fund of stories seems to be accumulating out of the experience of the Federal Surplus Commodities Corporation, which in some instances presented families with foods that they had never before seen. One woman is reported to have baked, boiled, stewed, and fried the grapefruit without success—her family would not eat it. Celery was used for a pretty bouquet, and cauliflower leaves were cooked while the "flower" was thrown away.

Evaporated milk is still in the process of being introduced. Two important limiting factors stand out: flavor in contrast with fresh whole milk and the need for new recipes and somewhat different cookery methods. An interesting study has been made by Hollinger and Roberts of the reaction to the flavor of evaporated milk, which throws some light on the introduction of a new food. Because a supply of fresh milk is not available in some communities, an attempt was made to discover the extent to which evaporated milk would be accepted and to determine, in those cases where the first reaction was unfavorable, how long it would take in order to develop a liking for it. The milk was served to 921 persons varying in age and social status. Of these,

> 548 or 60 per cent would apparently accept it as a beverage without any preliminary period of learning to like it. . . . The percentage of acceptance was found to be greatest with the younger children and to decrease consistently with age up to 12 to 15 years.[15] [See Table 36.]

The authors conclude:

> This would tend to confirm the opinion held by those experienced in child feeding that important foods should be introduced early into the child's diet, since likes are then more easily established. The ease

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[15] M. Hollinger and L. J. Roberts, "Overcoming Food Dislikes: A Study with Evaporated Milk," *J. H. Ec.*, Vol. 21, 1929, pp. 930–1.

Table 36. Attitude toward Diluted Evaporated Milk of 921 Individuals Grouped According to Age

Age	Total Number	Percentage Expressing	
		Willingness	Dislike
Total	921	59.5	40.5
Under 3 years	23	91.3	8.7
3 to 5 years	153	85.0	15.0
6 to 8 years	186	66.0	23.9
9 to 11 years	151	51.6	48.4
12 to 15 years	96	48.9	51.1
High school	224	47.8	52.2
Adult	88	47.7	52.2

with which adults in this study changed their attitudes toward evaporated milk, however, indicates that prejudices can be overcome at any age provided the individual really desires to do so.[16]

It was found that mental attitude affected readiness with which food was accepted:

> With children this [satisfactory attitude] is best accomplished when the food is served in a natural setting with a matter-of-course attitude on the part of the adults in charge. Let the suggestion once be given . . . either by word or attitude, that there is something unusual or objectionable about the food, and refusals may be expected.[17]

The possibility of increasing the consumption of soy bean products has been discussed frequently in the past few years. They occupy an important place in the Chinese diet and are a good source of high-grade protein and calcium, a mineral in which many American diets are deficient. The soil-conservation program has brought a rapid increase in the acreage planted to this crop.[18] The beans now are ground largely for oil,[19] some of which goes to make margarine and is thus eaten without consumers' being aware that the fat is coming from a relatively new source. In 1939, 66 per cent of the total soy bean oil production was utilized in the industry of edible fats. The crushed portion of the bean goes mostly to cattle feed. Little success appears to have attended efforts to get consumers to eat soy bean flour, although soy bean wafers have appeared in the market. Some soy beans simulating salted peanuts have appeared in stores. No data have been found reporting volume of sales in this form. Many agricultural experiment stations are studying methods of preparing varieties that in green stage would be suitable for table use. It may be that an intensive educational campaign concerning nutritive value, methods of preparation, plus the need for sharing our food resources with needy European countries, may break down the barriers to the introduction of this food.

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[16] *Ibid.*

[17] *Ibid.*

[18] In 1932, 977,000 acres of this crop were harvested, and in 1940, 4,961,000 acres: *Agricultural Statistics,* 1941, p. 299.

[19] Seventy-two per cent of the beans were crushed in 1939.

Many failures to accept foods that are important in neighboring countries can be cited. Verrill feels that ignorance and misunderstanding are largely responsible for limited consumption of maté or Paraguay tea, ignorance not only of its merits as a beverage but also of the method of preparation and drinking which will yield the best flavor. He says:[20]

> Although few novices take kindly to maté at first, yet once the taste for it has been acquired, it is one of the most refreshing and sustaining of all beverages. Unfortunately, however, there has been so much exaggerated publicity and so many fake claims used in advertising maté in the United States, and so much controversy over its use, that it has never secured the place it should hold in our land. . . .

Hot peppers are still excluded for the most part from the American diet not because of ignorance but because the average American just cannot eat them. Verrill comments:[21]

> Although no northerner could possibly eat or swallow the hot varieties of the capsicum peppers, yet in many parts of the tropics the natives are very fond of them. I have frequently seen the Indians of Central America and Mexico munching the red-hot bird-peppers, and in the Yucatan and Campeche it is not unusual to see the Mayan children regaling themselves with these fiery little fruits as freely as children in the north would eat peanuts, and thoroughly enjoying the treat, although an ordinary white man might as well try to swallow molten lead as one of the peppers, or even a portion of one.

It would be interesting to know what factors interfere with our acceptance of a food which is enjoyed by people living so close to us. Verrill speculates as to whether the climate is not a factor. He observes that the hotter the climate, the hotter the native's food as a rule.

Response to the flavor of a new food is certainly influenced by the flavors in the customary diet. The introduction of a highly flavored food may be resisted among people accustomed to a bland diet and vice versa. One writer is of the opinion that potatoes were accepted slowly in Europe by the middle and upper income groups because "spiced foods had corrupted the taste." [22]

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[20] *Op. cit.*, p. 79.

[21] *Ibid.*, p. 36.

Emotional aversion to the use of certain foods is probably much more important in the case of animal than in the case of plant foods. There is marked distaste among most American people to the idea of eating horse flesh. Yet meat shops selling horse flesh are to be found in almost all European cities. Verrill commenting on American aversions to certain foods writes: [23]

> The North American Indians ate and still eat many things which seem strange, repulsive and even nauseating to white people, yet many of these foods of the Indians are highly nutritious and when properly prepared are tasty and delicate. Among the Indians of our west, grasshoppers and crickets were important sources of food, and when dried and ground and made into crisp cakes are truly delicious. In the West Indies the natives, as well as many white people, are very fond of the big white grubs found in the pith of palm trees. . . . When spitted on a sliver of palm and roasted over hot coals, they swell up and pop open like roasted chestnuts which they much resemble in flavor and consistency. In Mexico no wedding feast is complete without a dish of honey-ants, while the egg-masses of the aquatic beetle are considered a real delicacy and are gathered and marketed in vast quantities.
>
> Possibly many people feel that to eat raw fish savors of savagery and is repulsive, but those same people will eat raw oysters and clams and thoroughly enjoy them. In the same way, moldy or even maggotty cheese is regarded as one of the choicest morsels by many of our epicures who would never think of eating palm grubs or caterpillars.

Aversions, of course, may fade:

> A few years ago any ordinary civilized white person would have been disgusted at the mere idea of eating snake meat, yet today canned Florida rattlesnake is a popular and fashionable dish and is served in the most exclusive and highest priced restaurants and hotels in New York and elsewhere.[24]

After his survey of the extent to which Europeans coming to America have adopted American foods, Verrill concludes that "what is good to eat and what is not is all a matter of habit, custom and taste, and until one has actually tried some of the strange, and often seemingly disgusting, viands of other lands and other races, it is impossible for one to state whether or not they are really tasty and good."[25] Of our acceptance of vegetables, he says:[26]

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[22] E. P. Prentice, *Hunger and History,* 1939, p. 133.

[23] *Op. cit.,* pp. 183–7.

[24] *Ibid.,* p. 184.

> With all our boasted modernity, our cosmopolitan ideas and our wide travels, our dietary knowledge, our vitamins-calories fanaticism, our claim to be the best fed of nations, our rapid transportation and up to date refrigeration, and the fact that nearly all the food-plants of the Temperate and Tropical Zones may be grown within the United States, we are still depending upon the same vegetables that were raised and eaten by our great-grandparents. . . .
>
> Again and again efforts have been made to introduce many of these splendid tropical American vegetables to our northern markets. But in every case the attempts have ended in failure, our public refusing to purchase the innovations or even try them out. Yet if our people would only throw aside their ultra-conservatism in the matter of edibles, and would adopt these nutritious and splendid vegetables of our tropical lands, the living costs would be greatly reduced and a far wider variety of vegetables would be added to our daily fare.

Nutritional Education

Scientific investigation during recent years has greatly increased our knowledge of the relationship of food nutrients consumed and physiological development and our knowledge of foods providing various nutrients. Thus science more fully than ever before provides rules to guide people in choosing foods. Scientific discoveries eventually have their effect through persons' learning of them and consciously reevaluating their food habits. Many people are influenced, however, only indirectly by a change in the customs and conventions of the group of which they are a part. Speed of change is difficult to measure. One writer[27] believes:

> This newer knowledge of nutrition, for which we are indebted to the sciences of chemistry and physiology, has found rapid and ready acceptance among breeders of livestock, who have a financial interest in the result, but its influence on human dietary habits has been much less evident.

Several questions arise concerning nutritional education: (*a*) What changes have occurred in nutritional advice to consumers? (*b*) What educational channels are important and how effective are the various educational programs? (*c*) Whose diets are most effected? (*d*) What kind of fallacies concerning diets exist? (*e*) What part has advertising played in the dissemination of nutritional knowledge?

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[25] *Ibid.,* p. 188.

[26] *Ibid.,* pp. 49–50. Verrill goes on to point out that a tropical plant, leren, also known as tupitambo, is just beginning to find its way into the markets of New York and will probably become popular since it is appearing in the menus of some of the most popular restaurants.

[27] R. E. Remington, "The Social Origins of Dietary Habits," *The Scientific Monthly,* Vol. 43, Sept., 1936, pp. 193–204.

Changes in Nutritional Advice

Dr. W. O. Atwater, an eminent nutritionist, in 1898 advised:[28]

> In general it may be said that the cost of the diet may be diminished by consuming less fruit, less expensive cuts of meats, and fewer vegetables than is ordinarily found to be the case. Fruits add little to the food value of the diet, although they undoubtedly are valuable for other reasons. . . . Wheat flour in the form of bread macaroni, etc., is one of the most nutritious and at the same time cheapest food.

Nutritional science is relatively young, the most important discoveries having occurred since the beginning of the 19th century. It is thus not strange that the advice of experts given in one decade or even one year is outmoded in the next. Bananas at one time were banned as baby food and later highly praised; the merits of spinach have been loudly acclaimed and later doubt was expressed as to whether nutrients revealed by test-tube analyses were assimilated in the body. Experts for many decades warned people against excessive consumption of meat; whereas during the last few years such warning on the whole has been felt to be unnecessary and even undesirable. There was an era of high-roughage diets, including raw fruits, vegetables, and bran; now consumers are warned against the possible dangers of bran and are advised that nutrients in many raw vegetables probably are not assimilated by many people. When nutritionists placed greatest emphasis for meeting caloric needs, sugar was rated high as a food; now its high consumption is widely deplored. What effect does such shifting of advice have on peoples' attitude to dietary recommendations? Some scepticism certainly is introduced.

What Educational Channels Are Important?

Information bearing on nutritional discoveries is disseminated first of all in professional journals where it reaches the specialists, most of whom are engaged in scientific investigation. It gradually gets into textbook and other materials used in colleges, and later, sometimes much later, it finds its way into material used at other educational levels.

Nutritional education reaches most people through many channels: elementary and high schools and colleges; adult-education courses offered by state educational agencies and other types of organizations. Magazines, newspapers, and radio give nutritional education a prominent place. Dietitians, doctors, and nurses, through public health services and other media, advise patients. Which medium carries most authority, challenging people to change their food habits? Many people probably are ready to make guesses and speculations. There are some, for example, who would rate the authority of doctors high. They may be looked upon as the key to eliminating deep-rooted misconceptions. In any case their cooperation, along with that of many other people, is important in improving food habits.

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[28] *Dietary Studies in Chicago, 1895 and 1896.* U. S. Office of the Experiment Stations, Bul. 55, 1898, p. 72.

Whose Diets Are Affected?

It seems feasible to hazard a guess that diets prescribed by nutritional specialists to individuals in subnormal health are most quickly influenced. Such diets are planned by specialists whose professional standards impose pressure to keep in touch with scientific findings. The patients, for the most part, are sufficiently alarmed at their own condition to accept the foods prescribed, even though they necessitate a marked change in food habits. The diet of normal, healthy individuals who regularly eat the meals planned by a trained dietitian are likely to be influenced by scientific discovery more quickly than those whose food is planned without the help of specialists.[29]

Of the meals served at home it seems highly probable that the diets of infants and young children are likely to be affected sooner by scientific discoveries than those of the older children and adults. To an increasing extent the diet of babies, when they are not breast fed, is prescribed by specialists. The diet of a young child is simple. Food for maximum health and growth is likely to overshadow all the other factors determining selection. In addition, the child has had less chance than the other members of the family to develop a wide range of likes and dislikes. In the older members of the family emphasis often seems to be placed on foods to please the eye, to tempt the appetite, to impress the neighbors, or to maintain a slender figure rather than on food for optimum health.

[29] See, for example, S. O. Morris and M. Bowers, "A Study of Diets of an Hundred College Women Students," *J. Am. Diet. Ass.*, Vol. 18, May, 1939, pp. 358–62. This study reports the food consumed in one week by 100 women students at Utah State Agricultural College. They were classified in four groups: living at home, in boarding houses, in bachelor quarters, and in dormitories. The diets of students living in the dormitories were found slightly superior in quantity and quality, while those of students living at home were poorest in both respects. Other dormitory diets have been evaluated. See also B. B. West, "Adequate Dietaries for Sororities and Fraternities," *J. Am. Diet. Ass.*, Vol. 7, 1931, pp. 135–9, who reports that diets were adequate in the 34 sororities and fraternities when planned by adequately trained personnel.

Interest in nutritional knowledge appears to be related somewhat to income. For example, Crawford, in his study *The People's Food*, grouped the families studied into five classes, arranged below in descending order of income. The *D* and *C* groups are much below the others in the percentage expressing an interest in diets. It is, of course, highly probable that the *AA*, *A*, and *B* groups had much more formal education than the *C* and *D* groups, and the women in the higher-income groups may have been more interested in slimming.[30]

Family Class	*Percentage of Housewives Expressing an Interest in Diets*
AA	33.6
A	33.5
B	26.6
C	17.0
D	8.2

Effect of Classroom Education

Knowledge affects diet only when people who make choices not only have information but also base their behavior on it. The relationship between knowing and doing or between having been exposed to information and acting in accordance with it has always been a question of importance to many teachers. In an effort to throw some light on this question, Holme studied the food intake of 1,017 freshmen and upperclass women between the ages of 17 and 25 years, at Iowa State College during 1935 and 1938. The upperclass women selected were those enrolled in classes in dietetics. Thus they were much better informed than the freshmen on the importance of wise choice and foods which would contribute most fully to optimum health. The diet of each student was scored. From the food scores it was concluded that home-economics training did not improve significantly the food habits of college women. For example, the food scores of freshmen women were found to be significantly higher, and more of them than of the upperclass women consumed the larger quantities of fruit, vegetables, and meat.[31] It is important, of course, to note that the study of dietetics may have prevented the diets of the upperclass women from being worse than they otherwise would have been. After four years in college they were four years further away from the diet of adolescence and childhood which might possibly score much higher than the average run of college diets.

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[30] *Op. cit.*, p. 85.

[31] M. E. Holme, *Nutritional Status of Iowa State College Women*, unpublished thesis, Iowa State College, 1938.

Emerson, after many years of contact with college students, reports that faulty health habits increase from year to year.[32]

> The higher the intellectual attainments in the subjects of health and disease, the lower the health intelligence. In other words, the greater the student's theoretical knowledge of health, the poorer his practice.

Emerson apparently formulated his conclusion without a recorded study of knowledge of food habits and so may have been unduly impressed and irritated by the failure of those who "knew better" to govern their habits in accordance with their knowledge.

A study of the food habits of high-school pupils in Iowa was made for the purpose of determining whether home economics is a factor influencing the dietaries of high-school girls. Girls in 10 vocational schools in Iowa furnished 1,153 dietaries records which were examined; 836 of these records were from girls enrolled in home-economics classes and 317 from girls having no home-economics training. In addition, the girls were given a test of their knowledge of facts concerning good diets that usually are taught. The mean dietary score was no higher for the home-economics than for the non-home-economics group. In the home-economics group there was no relationship between the test scores and the dietary scores.[33] Such studies should be a challenge to those teaching nutrition to find more effective teaching methods or to develop tests which get a little closer to the truth.

Another study presents somewhat different evidence. The food habits of students, with and without nutritional training and eating in the cooperative houses at the University of Tennessee, were investigated over a number of years. "Nutrition appears to improve habits, particularly in regard to the use of milk, fruits, vegetables and whole grain cereals." [34] Still another showed that in a school cafeteria, by means of posters with a simple statement of the characteristics of an A lunch, the proportion of A lunches increased.[35]

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[32] W. R. P. Emerson, "Health Habits in a Woman's College," *J. Am. Med. Ass.*, Vol. 90, 1928, pp. 1434–5.

[33] M. L. Jones, *The Food Habits of 678 High School Pupils in Iowa,* unpublished thesis, Iowa State College, 1934. Much the same conclusions are reached in studies by M. Botto, *The Effect of Home Economics Training Upon the Food Habits of High School Students,* unpublished thesis, Iowa State College, 1932, and G. P. Williams, *Effect of High School Home Economics Instruction on Food Habits of a Group of Japanese Girls in Southern California,* unpublished thesis, Iowa State College, 1939.

[34] F. L. MacLeod, "Home Economics Research in the South," *J. H. Ec.,* June, 1939, p. 376. See also G. Oldham, *Effect of a Junior High School Food Course on Certain Food Practices of a Selected Group of Homemakers of Kansas City, Kansas,* unpublished thesis, Iowa State College, 1938.

Present interest in improving diets is likely to bring an increase in efforts to measure the effectiveness of instruction in the schools. Educators are faced with many perplexing questions concerning subject matter and its presentation, the age level at which education is most effective, the effect of education directed only at children, and the extent to which it is essential to reach parents as well as children. In an isolated community in Kentucky an intensive study at present is being made of the effect of education on diets and other aspects of living. Educational materials especially designed for the community are being prepared.[36] Plans have been made to check change in habits.

Personal Instruction

Emerson believes that personal instruction of college students is much more effective than group instruction.[37] This method has also been found to be especially effective among foreign-born families. For example, Howell and Phillips[38] found that

> In the Italian homes visited by the dietitians of the New York Association for Improving the Condition of the Poor, there was found a decided contrast in their liberal use of milk. This is only one of the many illustrations that could be given of the improvement brought about in the diet by careful, personal instruction. . . .

A few studies have been made of the effect of nutritional education among low-income families. Gillett and Rice, in *Influence of Education on the Food Habits of Some New York City Families,* report:

> In both 1914 and 1918 studies, the families in which intensive food education had been given, distributed their money among the various types of food in such a way as to obtain diets of a higher food value at less cost than did the uninfluenced families in the corresponding period.[39]
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> While such intensive instruction as was necessary to bring about these improvements in diet may be questioned on the basis of expense, the results justify the expenditure. The children in the influenced

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[35] E. M. Lund, *The Educational Effectiveness of a School Cafeteria in Relation to Food Selection, Social Customs and Civic Responsibility,* unpublished thesis, Iowa State College, 1939.

[36] See, for example, *An Experiment in Applied Economics,* A. P. Sloan Foundation, Inc., pamphlet, 1940.

[37] *Op. cit.*

[38] *J. H. Ec.,* Vol. 12, September, 1920, p. 411.

[39] *Op. cit.,* 1931, p. 7.

> families were receiving a larger reserve of health . . . yet their food was costing them less than the food in the uninfluenced families. This saving in the amount spent for food more than covers the cost of the teaching.[40]

Similar findings are reported by Bovee and Downes on the effects of an intensive educational program for a period of nine months by the staff nutritionists and nurses of Mulberry Health Center in New York City. Families receiving the education were compared with a control group. Eight food habits among children were rated. In the control group the percentage of the food habits rating good on the first visit and after nine months were 59 per cent and 64 per cent, respectively. For those families receiving education from the nutritionist, the percentage of the food habits rating good were, for the first visit, 59 per cent and, after the nine months of intensive nutritional education, 85 per cent.[41]

A study of the effect of an extensive program of child health has been made in a city in Illinois. An experimental group having a full program of health instruction was compared with a control group receiving no class instruction and with a supplementary group receiving only limited class instruction. All children included were examined by a physician. For the period the improvement scores in good nutrition were as follows: health-instructed group 25 per cent, supplementary group 8.1 per cent, and control group 5.8 per cent. The investigators conclude:[42]

> The dietary changes, while consistent, were not large enough to assure a true difference; but under the circumstances it seemed likely that improvement was indicated. It can be stated with confidence that, of two groups of children from the same types of home, those receiving instruction in health were, during this period, progressively less like the control pupils of the same ages and health status (at the beginning of the program) with respect to the amount of milk and of vegetables consumed. Throughout the teaching, marked increase in the consumption of cereals was likewise established. Among the instructed pupils the chances were better than 93 in 100 that fruit was more frequently a part of their daily diet during the last year of the teaching than it had been during the preceding year.

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[40] *Ibid.*, p. 8.

[41] D. L. Bovee and Jean Downes, "The Influence of Nutritional Education in Families of the Mulberry Area of New York City," *The Milbank Memorial Fund Quarterly*, Vol. 19, April, 1941, pp. 121–46. See also R. B. Barker, "Application of Nutrition Principles to Low Income Families," *Med. Woman's J.*, Vol. 46, March, 1939, pp. 82–6.

[42] M. C. Hardy and C. H. Hoefer, *Healthy Growth*, 1936, p. 263. See also W. F. Walker and C. R. Randolph, *School Health Services: A Study of the Programs Developed by the Health Department in Six Tennessee Counties*, 1941.

Knowledge and Action

Studies of the effect of nutritional education clearly reveal divergences, at times great, between actual food habits and what is intellectually accepted as desirable. In a few cases an attempt has been made to discover how many people are aware of what nutritionists believe are good food habits. One study of milk-consumption habits, made by L. D. H. Weld (*Factors Affecting the Sale of Milk,* mimeo. release of the National Dairy Council, December, 1941), reports:

> One very outstanding fact that cropped up was the extent to which educational work has put over the proper daily amount that should be consumed. Of the families having adults who drink no milk or drink milk in insufficient quantities, two-thirds know how much these adults should drink. Of the families having children who drink no milk or milk in insufficient quantities more than 70% know how much these children should drink.

Better Nutritional Education

The great gap between what nutritionists advise and existing food preferences and habits is promoting a search for better educational methods. Slogans, themes, and means of pictorial presentation as well as additional channels and agencies are being sought. Efforts are being made, as part of the war program, to bring commercial advertising in line with nutritional advice and to reach consumers in stores, at point of sale as well as in their homes. Personal contacts through face-to-face relationships with advisors seems important in addition to impersonal contacts through classroom lectures, radio addresses, newspaper columns, etc. War programs in some rural communities are being developed so that every family is visited by a leader who imparts to the individual family the advice which is to be disseminated. The relative effectiveness of such methods in nutritional education have yet to be determined.

Better nutritional education in some measure depends on greater freedom for educators to compare the relative merits of various foods. Protests from industrial groups, in some cases and at some times, have interfered. Restraints on advice to use margarine in low-cost diets provide an outstanding example.

Food Fallacies

There are still many families whose ideas about food have been practically untouched by the science of nutrition. Many misconceptions exist concerning the relation of the mother's diet to the baby's health. In some communities milk in the mother's diet is considered harmful, and vegetables, eggs, and fish are thought to be dangerous. All upsets of the baby are laid to food eaten by the mother. Numerous examples of this type can be secured.[43]

In addition, many ideas concerning diets are quite erroneous, even those held by people who have considerable contact with nutritional education. This is partly the consequence of the scientific rules of today becoming the discarded theories of tomorrow. In such a situation it is not surprising that food fads flourish. "Fletcherism" came and went; the roughage fad is waning if not already well out. A charlatan who proclaims lustily and loud that he has discovered *the* diet that will cure all food ailments and restore vigor to those fatigued, harassed, and worn with the bustle and strain of "modern" life is likely to get a considerable following. Witness the recent "Hay" diet, for example. Hay, among other things, advised that people should never eat proteins and carbohydrates in the same meal and laid down other supposedly scientific rules. Thousands of people, believing that at last the magic key that unlocks the door to health had been discovered, bought Hay's literature and made him a rich man.[44] Dietary fads for slimming change as frequently as the style of women's hats. Mendel has stated:[45]

> There is no field of practical importance related to human well being in which there is greater opportunity for dogmatism and quackery for pseudoscience and unwarranted prescriptions and proscriptions than in the domain of our daily diet.

Mitchell and Cook[46] in writing of the food faddist state:

> The typical food *quack lecturer* or pseudo *health promoter* usually has poise, personality and persuasion, which qualities assure him of a hearing and a goodly number of converts. His plausible arguments and glib use of scientific terms inspire false confidence. The letters usually found after his name may be fake degrees given by third-rate institutions, sometimes founded for the express purpose of conferring the degree, or *bona-fide* degrees given by reputable institutions whose professional and ethical standards he had long since

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[43] For discussion of fallacies see L. J. Bogert, *Nutrition and Physical Fitness,* 1940.

[44] For a discussion of the unscientific nature of food-combination fads see C. W. Lieb, *Hygeia,* August, 1936, pp. 683–6; and M. S. Rose, *J. Am. Diet. Ass.,* Vol. 8, 1933, pp. 489–503.

[45] L. B. Mendel, "The Changing Diet of the American People," *J. Am. Med. Ass.,* Vol. 99, July 9, 1932, p. 120.

[46] *Facts, Fads, and Frauds in Nutrition,* Mass. Agr. Exp. Sta. Bul. 342, 1937, p. 24.

> forsaken. His pseudo-scientific explanations of nutrition and physiology abound in quotations from authentic sources, sometimes misinterpreted, sometimes used correctly along with misleading statements to give the whole an air of authority. The insidious mixture of the true and false is always more difficult to interpret correctly than the glaringly false. The clever quack is well aware of popular interest in the scientific and he works accordingly. Of all quacks the *food faddist* is the most prolific because he gets the *biggest following*—his is a profitable business. He makes converts faster than scientific knowledge can be broadcast because the scientist is conservative and tries to be accurate—the food faddist quite the opposite.

Bogert feels that many consumer attitudes contribute to food fads.[47]

> The food faddist . . . is attracted to this cult because it satisfies some craving to try a novel dietary, to be in fashion, to attract attention by being unusual in diet, or from the desire to do something about his health. He may benefit by the simpler diet, more regular living, and especially through the belief that he will be helped, but this proves nothing as to the theories on which the cult is based, and the same results might have been more painlessly attained by other means. The food faddist represents a psychological type and often drifts from one dietary cult to another; as long as we have this type of people in such large numbers, diet fads and cults will persist and will be profitable to their originators.

Little has been done to find out the extent of nutritional ignorance or the fallacies which check an increased consumption of some foods which would help to correct existing deficiencies of the diet.

Future Changes

In a future so full of uncertainty, remarks concerning what is likely to be may appear rash. A few things are fairly certain: (1) Nutritional education is likely to be increasingly important; (2) the shift of population from rural to urban communities will not be so great in the next as in the past fifty years; (3) the reduction in energy needs is not likely to continue much beyond the present point, at least not for a long time. In addition the emergency situation now being faced may result in the breaking down of existing food habits, and the shift to cheaper sources of food supplies.

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[47] L. J. Bogert, *Diet and Personality,* 1934, pp. 211–2.

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Changes in Food Habits[1]

One need not dip far into the history of American scales of living to become keenly aware that marked changes have occurred in food habits—basis foods consumed as well as in combinations served at any one meal and methods of food preparation.

Prestatistical Era[2]

For most foods the statistical era in the United States did not exist prior to the end of the 19th century. In the hinterland of statistics, information of food habits must be gleaned chiefly from diaries, letters, and other accounts of the life of communities, including those of European travelers in the country. This era covered more than 250 years. It includes the famines that decimated the very early settlements, the periods in which advice from friendly Indians about corn and other native foods and ways of using them was very important, as well as a later period when America was being looked upon more and more as a food storehouse of many European countries. Throughout the entire era frontier conditions existed for some families. At the same time commercial agriculture became increasingly important, transportation facilities developed, and towns grew. Apart from the first few years of settlements, such records as are available point to an abundant food supply, tales of which were influential in inducing many people to venture the long and arduous journey across the Atlantic.[3]

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[1] Considerable help was derived from the systematic discussion given this subject by C. Van Syckle, *Changes in Food Consumption in the United States and Certain Factors Affecting It,* unpublished doctoral thesis, Iowa State College Library, 1941.

[2] For an extensive description of early-American food habits see G. I. Thomas, *Foods of Our Forefathers,* 1941; and R. O. Cummings, *The American and His Food,* 1940.

[3] Scattered accounts of diets, one to be found in the following: C. K. Bolton, *The Real Founders of New England,* 1929; W. B. Weeden, *Economic and Social History of New England, 1620–1789,* 1890; A. M. Earle, *Colonial Days in Old New York,* 1904; L. G. Tyler, "England in America 1580–1652," A. B. Hart (ed.), *The American Nation, A History,* 1904, Vol. 5; A. Nevins, *American Social His-*

Gaillard Hunt in his book, *Life in America 100 Years Ago*, writes:

> An opulent man giving a dinner party would serve something like the following: the first course, "cod's head," being the head and shoulders of a fresh cod fish; pea soup; venison; chicken roasted; boiled ham; beef callops, which correspond with beefsteak, potatoes, celery, parsnips; jelly, pies, marrow pudding. For the second course, turkey poults (young turkeys); scalloped oysters; roasted rabbits, wild ducks; lamb; smelts; haricot (mutton ragout); vegetables, cherry tarts; and stewed pippins—some ice cream came by itself. It was considered a great luxury, and was eaten on rare occasions.

Raisins, figs, oranges, and almonds were also among the luxuries of the period.

The diet in some frontier communities was very limited in variety, consisting largely of home ground or locally ground corn or wheat, home-raised pork, dried beans, hominy, fresh fruits, and vegetables and dairy products in season. Wild game and berries were usually important.

Early in the 19th century some of the rapidly expanding cities had flourishing markets. Mrs. Trollope wrote of the Cincinnati market:

> Perhaps the most advantageous feature in Cincinnati is its market, which, for excellence, abundance, and cheapness, can hardly, I should think, be surpassed in any part of the world, if I except the luxury of fruits, which are very inferior to any I have seen in Europe. . . . The beef is excellent, and the highest price when we were there, four cents the pound. The mutton was inferior, and so was veal to the eye, but it ate well. . . . The poultry was excellent; fowls or full-sized chickens, ready for the table, twelve cents, but much less if bought alive, and not quite fat; turkeys about fifty cents, and geese the same. The Ohio furnishes several sorts of fish, some of them very good, and always to be found cheap and abundant in the market. Eggs, butter, nearly all kinds of vegetables, excellent and at moderate prices. From June until December, tomatoes (the great luxury of the American table in the opinion of most Europeans) may be found in the highest perfection in the market for about sixpence the peck. They have a great variety of beans unknown in England, particularly the Lima bean, the seed of which is dressed like the French haricot; it furnishes a very abundant crop, and is a most delicious vegetable. . . . All the fruit I saw exposed for sale in Cincinnati was most miserable. I passed two summers there but never saw a peach worth

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tory as Recorded by British Travellers, 1923; J. B. McMaster, *A History of the People of the United States*, 1902; I. Lippincott, "Pioneer Industry in the West," *J. Pol. Econ.*, Vol. 18, April, 1910, pp. 274–8.

[1] Frances Trollope, *Domestic Manners of the Americans*, 1927, pp. 50–2 (1st ed., London, 1832).

> eating. Of apricots and nectarines I saw none; strawberries very small, raspberries much worse; gooseberries very few, and quite uneatable; currants about half the size of ours, and about double the price; grapes too sour for tarts; apples abundant but very indifferent . . . pears, cherries, and plums, most miserably bad. The water-melons, which in that warm climate furnish a delightful refreshment, were abundant and cheap.

A very interesting comparison has been made by Woodhouse of the food consumption of two professional families similar in family composition, both with family heads in federal civil service, apparently similar in economic status and living in Washington, D. C., the one in 1816–1817 and the other 1926–1927. Several differences in foods consumed stand out.[5]

1816–1817	*1926–1927*
No meals in restaurants and cafés are indicated.	Husband ate lunches out and family occasionally dined at cafés and restaurants.
More butter.	Less butter.
Less milk—2.7 per cent of the total food expenditure.	More milk—20.2 per cent of the total food expenditure.
26.4 per cent of the food expenditure went to meat, poultry, and fish.	9.1 per cent of the food expenditures went for these items.
16.3 per cent of the food expenditures went to cereals, of which 11.5 per cent was for flour and 2.7 per cent for baked goods.	3.5 per cent of the food budget went to cereals, of which 0.6 was for flour and 2.9 per cent for baked goods.
Price per pound paid for sugar was higher but the quantity purchased about 40 per cent less.	Sugar purchase high in spite of large purchases of baked goods and canned fruit and ice cream.
7 per cent of total food budget to fruits and vegetables, with quantities of turnips, parsnips, cabbage, and cucumbers being high.	20.6 per cent of the total food budget to these items, with quantities of lettuce, cauliflower, celery, and tomatoes being high.
Raisins, an important fruit, with no canned fruit being purchased.	Raisins minor, with canned fruit taking one-quarter of the fruit expenditures.
Wine got 8.2 per cent of food budget.	No corresponding expenditure.
Ice cream reported once.	90 pints purchased.
Tea and coffee took 3.3 per cent of food budget.	Coffee took 0.5 per cent and no tea was reported.

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[5] C. G. Woodhouse, "The Standard of Living at the Professional Level 1816–17 and 1926–27," *J. Pol. Econ.*, October, 1929, pp. 552–72.

Consumption Data of Groups of Families

Statistical data revealing trends are of two general types: production and market data reporting "total" food and consumption data of family groups. Family studies, for the most part, have been confined to the wage-earner groups.

Stiebeling has summarized studies from 1885 to the late 1930's. Her findings are given in Table 37. The three food-expenditure levels given for each period largely exclude families with annual incomes over $3,000. A marked drop is apparent in the importance of "meat, poultry, fish and eggs," and a smaller drop in cereals. No decline in meat consumption is apparent since 1914. A rise occurs in the importance of fats, sugars, vegetables and fruits, and dairy products. The pattern of change appears much the same at all food expenditure levels.

In 1917–1919 and again in 1934–1936, the United States Bureau of Labor Statistics secured data on expenditure patterns of families of wage-earners and low-salaried clerical workers in 51 cities. Facts secured provided weights for the cost-of-living index. Striking differences occur for these two periods in the importance assigned in the index to various foods. (See Table 38.) In this period of less than two decades a marked decline for these families is reported in the importance of flour, cornmeal, and white bread, Irish potatoes, apples, and tea. The decrease was less marked for beef and cabbage. Marked increases occurred in the importance of oranges, bananas, lettuce, fresh green beans, spinach, and canned fruits and vegetables in general, and canned tomatoes in particular, and in poultry, cheese. A relatively smaller percentage increase is reported for pork and coffee.

Production and Market Data Measure Food Consumption

Production data and food sales in markets provide means of measuring food consumption. A measure of total national consumption is secured at times by determining production of specific goods during a year, that is, the quantity of food produced for sale plus imports, less additions to and plus withdrawals from stocks in storage.

Research in the measurement of the consumption of many foods is in a preliminary stage. Some reports do not make clear which foods are included in such broad groupings as fruits and vegetables, for example; nor is a clear statement always made of the basis of the estimation where satisfactory data are not always available in the various published statistical

Table 37. Trends in Village and Urban Dietary Patterns as Shown by the Proportion of Calories Derived from Specified Groups of Foods *

Food Expenditure per Person a Week † (Period)	Percentage of Calories Derived from								
	Grain products	Meats, ‡ poultry, fish, eggs	All fats ‡	Sugars and sweets	All vegetables and fruit	Milk and cheese	Milk, cheese, fruit, and succulent vegetables	Grains, meats, poultry, fish, fats other than butte , sugar, potatoes, and dried legumes	Milk, cheese, all vegetables, fruit, butter, and eggs
$1.25–$1.87									
1885–1904	41	22	13	10	9	5	8	84	22
1905–1914	42	18	12	9	12	7	10	83	26
1915–1924	37	13	15	12	14	9	16	77	30
1925–1934	37	12	16	11	13	11	17	78	29
1935 and later	34	12	18	12	13	11	16	77	31
$1.88–$2.49									
1885–1904	34	25	15	10	10	6	9	81	26
1905–1914	40	18	13	10	13	6	11	79	29
1915–1924	36	15	15	12	13	9	15	75	32
1925–1934	36	12	16	11	15	10	16	78	31
1935 and later	31	13	18	12	15	11	18	74	34
$2.50–$3.12									
1885–1904	38	24	12	10	10	6	9	83	24
1905–1914	35	25	12	10	11	7	11	84	23
1915–1924	30	13	18	12	16	11	17	72	38
1925–1934	32	15	16	11	15	11	19	73	34
1935 and later	30	15	18	12	14	11	18	73	34

* H. K. Stiebeling, "Trends in Dietary Habits in the United States," *1939 Yearbook of Agriculture*, p. 128.

† Adjusted to 1935 price levels, by use of the retail food-cost index of the U. S. Bur. Lab. Stat.

‡ Salt side and bacon are included with the fats.

Table 38. Relative Importance of Various Items Included in Bureau of Labor Statistics' Index of Food Costs in Large Cities (Costs as of September, 1939) *

Item	Percentage Distribution of Index Based on Family Data of	
	New index 1934–1936	Original index 1917–1918
Cereals and bakery products	15.0	18.5
Cereals		
Flour, white	1.7	2.4
Macaroni	.9	1.0
Corn flakes	1.3	1.4
Cornmeal	.3	.8
Bakery products		
Bread, white	6.5	8.9
Bread, whole wheat	.8	.9
Bread, rye	1.1	1.2
Cake, vanilla cookies	1.8	1.4
Soda crackers	.6	.5
Meats, fish, and poultry	29.0	29.9
Beef		
Round steak	4.1	6.5
Rib roast	4.8	3.0
Chuck roast	1.8	4.0
Veal—Cutlet	2.0	2.3
Pork		
Chops	3.7	3.3
Bacon, sliced	1.6	1.6
Ham, whole	2.2	2.7
Salt	.3	.3
Lamb		
Leg	1.3	1.1
Rib chops	1.5	.7
Poultry—Roasting chickens	3.2	1.9
Fish		
Fresh	1.9	...
Salmon, pink, canned	.6	2.5
Dairy products	19.1	18.9
Butter	5.1	5.5
Cheese	1.5	.8
Milk, fresh (delivered)	11.5	11.6
Milk, evaporated	1.0	1.0
Eggs	5.9	5.7
Fruits and vegetables:		
Fresh	15.8	14.2
Apples	1.5	3.0
Bananas	1.4	.9
Oranges	3.7	.9
Beans, green	.6	.1
Cabbage	.7	.8
Carrots	.9	1.0
Lettuce	1.7	.9
Onions	.9	.7
Potatoes	3.2	5.3
Spinach	.9	.2
Sweet potatoes	.3	.4
Canned	3.8	1.3
Peaches	.5	.1
Pineapple	.4	.1
Corn	.6	.3
Peas	.8	.4
Tomatoes	1.5	.4
Dried	1.0	1.1
Prunes	.6	.6
Navy beans	.4	.5
Beverages	3.3	3.6
Coffee	2.5	2.1
Tea	.8	1.5
Fats and oils	3.0	2.8
Lard	.9	1.0
Shortening	.7	.6
Mayonnaise	.9	.3
Oleomargarine	.3	.8
Peanut butter	.2	.1
Sugar	4.1	4.0
All items, this index	100.0	100.0

* U. S. Bur. Lab. Stat., *The Bureau of Labor Statistics' New Index of Cost of Living*, Serial R 1156, 1940.

series of production, sales, exports, imports, etc. Various estimates for some minor foods vary even to the extent of showing a different direction of trend; others vary merely in the magnitude of the change indicated. Such differences, however, are relatively unimportant in that the major studies agree on the general change which has taken place in the diet.

Interest in the beginning was concentrated on commercial production and its flow through the markets. Although interest has broadened, many estimates still are more nearly commercial production than human-consumption estimates. Commercial production estimates [6] even if they are accurate may be defective as measures of consumption for the following reasons:

(*a*) For some foods family production for use at home, by both farm and other rural families, is important.

(*b*) In some cases not all products sold are included in data, these having been secured only from the so-called commercial production areas; and farms outside such areas may sell surpluses that are not used on the farm, for example, peaches and pears.

(*c*) Some of the food may have been diverted to non-human uses.

(*d*) No allowance is made for marketing loss between the point at which the volume was measured and the final sale to consumers. This waste is likely to be low for such things as tea, oatmeal, and butter, but high for fresh fruits and vegetables. It may be high because the product is perishable or because of the marketing practices used: for example, the return to the bakeries of all day-old bread may cause a loss of bread as high as 17 per cent.

(*e*) No allowance is made for household waste that occurs either in home storage, cooking, or on plates.[7]

During the past fifty years home gardens have tended to decline. With such a change occurring, any reported increase in per capita consumption of commercial fruits and vegetables tends to overstate the total increase. With some foods it is desirable, if data are available on commercial production only, to relate it to the non-farm population. Such a procedure may overstate somewhat any increase in that farm families have progressively shared in the consumption of commercial supplies of fresh fruits and vegetables.

For some time production estimates have included some home-raised and used products, for example, meat, poultry, and dairy products, potatoes and apples, but not other garden products. One study reports: [8]

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[6] For discussion of types of error in estimates of commercial production see "Foreword," U. S. Bur. Agr. Econ., *Consumption of Agricultural Products,* 1941. In the early years data on exports and imports are often unsatisfactory.

[7] U. S. Bur. Agr. Econ., *Food Waste Materials* (mimeo.), 1941. This study reports only the quantity of garbage and its disposition.

[8] U. S. Bur. For. Dom. Com., Dom. Com. Series 38, 1930, p. 27.

> Even with the leading fruits, only the commercial crop is available (except for apples), and no estimate can be made for gardens or farms not included in the commercial crop.

A later study says of its estimates:[9]

> It is believed that these estimates have materially reduced, if not eliminated, the bias inherent in the fact that earlier estimates of consumption of fruits and vegetables were largely based upon commercial production and marketing.

No indication is given, however, of the method used in making the estimate.

Even with such defects, data are useful in revealing trends. If any discrepancy, occurring between the measure secured and actual consumption, is relatively constant from year to year, satisfactory measure may be secured of trend even though the actual per capita consumption is in pounds or quarts or if some other measure is either under- or overstated.

One other feature of the data needs to be noted. Because of the changing population, per capita data alone are meaningful for consumption purposes. It must, however, be borne in mind that the average per capita consumption probably does not describe the consumption of any considerable part of the total population. Foods are not equally distributed. Inequalities arise owing to differences in income, food preference, region, and other factors.

The U. S. Bureau of Agricultural Economics (B.A.E.) is a major source of data on changes in per capita food consumption.[10] The United States Census of Manufactures provides information on the output of processed foods. The Food Research Institute at Stanford University has made some notable studies on wheat consumption and on the consumption of fats and oils.

The period covered by the estimates differs greatly from one food to another; for example, data on annual flour consumption is available since

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[9] U. S. Bur. Agr. Econ., *Consumption of Agricultural Products* (mimeo.), 1941.

[10] General sources of statistics of trends and cyclical changes in the consumption of a variety of foods include, E. G. Montgomery and C. H. Kardell, *Apparent Per Capita Consumption of Principal Foodstuffs in the United States,* U. S. Bur. For. Dom. Com., Dom. Com. Series 38, 1930; A. R. Tebbutt, *The Behavior of Consumption in Business Depression,* Har. Univ., Bur. Bus. Res. Studies Bul. 3, 1933; League of Nations, Mixed Committee, Final Report on the *Relation of Nutrition to Health, Agriculture and Economic Policy,* 1937; League of Nations, International Institute of Agriculture, *The Problem of Nutrition: Statistics of Food Production, Consumption and Prices,* Vol. IV, 1936; E. A. Duddy and D. A. Revzan, "Physical Distribution of Fresh Fruits and Vegetables," *J. Bus.,* Univ. Chicago, Vol. 10, No. 1, 1937; U. S. Dept. Agr., *Agricultural Situation* (monthly publication); U. S. Bur. Agr. Econ., *Consumption of Agricultural Products,* 1941; U. S. Biennial Census Manufactures.

1866. A recent report by the B.A.E. covers the years 1909 to 1939 for most of the important foods. The data are most complete for the period beginning 1929. Data over several years are necessary in order to indicate trend. Marked shifts may occur from year to year because of crop condition. The production of some foods has well-defined cycles, for example, pork and beef. Data including several of these cycles would be necessary in order to indicate a trend.

Cereal Consumption

Cereal consumption in the United States within the period for which statistical data are available has been steadily declining.

> Accepting the historical survey given in a report of the National Resources Board in 1934, the human use of all cereals at the turn of the century was 380 pounds per capita per year, and declined to 330 pounds at the outbreak of World War I and to 250 pounds in the early 1930's. A reduction from 380 to 250 pounds, or 34 percent, in some 30 years is a striking decline.[11]

Wheat is the most important cereal consumed in the United States. Decline in its use has been much the same as for cereals in general.

> The use of wheat fell from 225 pounds of flour at the turn of the century to 207 pounds in 1914, to 174 pounds late in the 1920's, and is now 154 pounds.[12]

Thus a 32 per cent decline has occurred since the turn of the century. Since the practice of destroying day-old bread has increased in importance during the past three decades, it is highly probable that the decline in flour consumption in terms of food eaten is even greater than is shown by these data.

Changes in the nutritive value of flour with the change in milling process and the increased purchase of bakery products, in place of flour, have been considered in Chapters 3 and 4.

Wheat is not the only cereal whose consumption has declined. Per capita consumption of corn fell from 129 pounds in 1909 to 88 pounds in 1919 to 70 pounds in 1939. "Other" cereals fell from 74.5 pounds in 1909 to 46.5 pounds in 1939. Rye bread in some communities has increased in popularity.[13] It is, however, relatively unimportant in the total cereal consumption.

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[11] A. E. Taylor, "Why Enrichment of Flour?" *Wheat Studies of the Food Research Institute,* Vol. 18, November, 1941, p. 83.

[12] *Ibid.*

[13] *1942 Consumer Analysis of the Greater Milwaukee Market.* In this study 72.6 per cent of the families in 1936 and 85.9 per cent in 1940 reported buying

Some decline has occurred recently in the consumption of breakfast cereals. Per capita consumption in 1927 was 12.3 pounds; in 1933 it was 9.6 pounds, and in 1939, 9.9 pounds.[14] Ready-to-eat cereals in 1937 and 1939 constituted 55.9 and 55.3 per cent, respectively, of total breakfast cereals.

Sugar Consumption

One estimate puts the consumption of sugar in the United States during 1830 at 12 pounds and during 1850 at 23 pounds per capita.[15] Changes in per capita consumption per annum since 1869 are as follows: [16]

Period	*Annual Pounds Available for Consumption per Capita*
1869–1873	36.2
1884–1888	48.3
1904–1908	72.5
1924–1928	103.9
1929–1933	97.7
1934–1938	94.4

Van Syckle,[17] in discussing these data, states that they probably overstate the increase in the use of sweets.

> Prior to the census of 1909 many sugar plantations had . . . small mills, and statistics of sugar production were probably less complete than after these farm mills had been replaced by fewer and larger ones. Molasses was more important in family dietaries of the 19th century than since that time.

In evaluating this shift to refined sugar, it is important to note that molasses supplies important quantities of calcium and iron.

The peak of sugar consumption was reached in the late twenties, the depression bringing a decrease. Some increase occurred even prior to the wave of hoarding that began in 1939.

An increasing proportion of sugar reaches the home in bakery products, confectionery, soft drinks, ice cream, canned fruits and preserves, and candy. In 1929, 28.1 per cent of the sugar supply was used in such foods.[18]

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rye bread. The average amount purchased by its users increased somewhat from 1936 to 1940.

[14] U. S. Biennial Census Manufactures.

[15] N. H. Borden, *Economic Effects of Advertising*, 1942, p. 280.

[16] Annual figures from U. S. Dept. Agr., *1940 Agricultural Statistics*, pp. 153–4.

[17] *Op. cit.*, pp. 68–9.

[18] U. S. Cane Sugar Refiners' Ass., *Sugar Economics, Statistics, and Documents*, 1938, p. 9.

One attempt to measure changing preference for sugar has been noted; namely, that by Schultz. He studied sugar consumption from 1875 to 1894, from 1895 to 1914, and from 1915 to 1929. Throughout these periods there was a tendency for the "real" price of sugar to fall.[19] During most of the years included consumption increased not only because of decline in relative price but because preference increased. Schultz [20] concluded, however, that relative preferences for sugar has been slipping downward since 1922.

> Since 1922 or thereabouts, consumers have been in the habit of reducing their purchases of sugar by approximately 0.42 pounds per capita per annum, or by approximately 0.5 per cent per capita per annum. Of course, changes in sugar prices and in business conditions sometimes obscure the tendency but there can be no serious doubt of its existence.

Meat, Poultry, Eggs, and Fish Consumption [21]

The trend in the consumption of all meats has been downward, with the greatest fall occurring in the consumption of beef. (See Table 39.)

*Table 39. Estimated Annual Per Capita Consumption of Meats in the United States by 5-Year Averages 1899 to 1938 (in Pounds)**

Years	Beef	Veal	Lamb and Mutton	Pork (excluding Lard)	Total
1899–1903	67.5	5.6	6.8	69.8	149.6
1904–1908	70.6	6.8	6.3	72.5	156.3
1909–1913	68.3	7.0	7.1	66.5	148.9
1914–1918	62.8	6.6	5.7	64.8	139.9
1919–1923	59.1	7.9	5.5	66.6	139.0
1924–1928	56.9	7.9	5.4	69.2	139.4
1929–1933	48.9	6.6	6.7	69.1	131.2
1934–1938	55.2	8.1	6.7	56.1	126.1

* *1940 Agricultural Statistics*, p. 413.

Extreme year to year fluctuations occur in the consumption of pork, but little change appears to have occurred in the general level during the period for which data are available. Low consumption during the middle thirties was in part the result of widespread drought, affecting feed supplies. There is some tendency for the consumption of lamb to increase and that of mutton to decline.

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[19] The "real" price studied was the actual wholesale price divided by the price level.

[20] *The Theory and Measurement of Demand*, 1938, p. 232.

[21] For a special study of interest see P. Richards, *Trends in the Production and Foreign Trade for Meats and Livestock in the United States*. U. S. Dept. Agr. Tech. Bul. 764, 1941.

Beginning in 1940 an extensive campaign was launched by the meat industry to increase consumer preference for meat. Its effect on trend of consumption will not be apparent for some time and will be difficult to measure because of the other major changes occurring. The war, bringing rationing in 1943, may nullify any effect it might have had.

Poultry consumption has been fairly stable, being approximately 20 pounds per capita for year. The consumption of turkey in recent years has increased somewhat. Data are, however, available only since 1929.

Egg consumption shows no marked tendency either to increase or to decrease. From 1909 to 1939, per capita annual consumption fluctuated between 276 and 338 eggs. This included eggs in all forms.[22] During this period there has been a sharp increase in dried and frozen egg products, used largely by bakeries.

Fish consumption has been studied little. One study places annual per capita consumption of all fishery products during the period 1919–1923, at 15 pounds but points out that data are very inadequate.[23] A more recent study reports an annual consumption of about 12 pounds during the early thirties and of about 15 pounds in 1935–1938.[24]

Potato Consumption

According to Duddy and Revzan,[25] the per capita consumption of Irish potatoes increased during the latter half of the 19th century. During the

	Annual per Capita Consumption (Pounds)	
	Irish Potatoes	*Sweet Potatoes*
1909–1913	189	34
1914–1918	169	34
1919–1923	161	38
1924–1928	153	27
1929–1933	146	31
1934–1938	147	32

[22] The estimate made by the B.A.E. does not include eggs produced by non-farm families.

[23] U. S. Bur. For. Dom. Com., Dom. Com. Series 38, p. 42.

[24] U. S. Bur. Agr. Econ., *The National Food Situation* (mimeo.), 1941, p. 17.

[25] *Op. cit.*, p. 37.

past thirty years, however, the consumption of Irish potatoes has been declining;[26] whereas, that of sweet potatoes shows no definite trend.

Consumption of Milk and Milk Products Other Than Butter[27]

Production and market data for the country as a whole cover a very short period of time. (See Table 40.) Scattered reports indicate that milk has been an important food in most farming communities. Improvements in shipments and in refrigeration and the development of pasteurization would lead one to expect that considerable increase in consumption of fresh milk has occurred in urban communities. Ross, in a study made of Metropolitan New York, states that a steady increase has occurred in per capita

Table 40. Annual per Capita Consumption of Fluid Milk and Cream and Manufactured Dairy Products (Other Than Butter), in Terms of Pounds of Milk Equivalent, 1924 to 1939 *

	Fluid Milk and Cream	Manufactured Dairy Products (Excluding Butter)
1924	341	93
1925	343	97
1926	345	97
1927	346	95
1928	349	96
1929	354	103
1930	352	101
1931	349	95
1932	353	90
1933	351	91
1934	334	100
1935	339	108
1936	346	113
1937	348	119
1938	347	124
1939	351	124

* U. S. Dept. Agr. Econ., *Consumption of Agricultural Products*, 1941, p. 10.

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[26] U. S. Bur. Agr. Econ., *op. cit.*, 1941, p. 12. The 5-year averages are taken from C. Van Syckle, *op. cit.*, p. 116. These estimates include potatoes sold by farmers for seed and for the manufacture of starch.

[27] See also E. E. Vial, *Production and Consumption of Manufactured Dairy Products*, U. S. Dept. Agr. Tech. Bul. 722, 1940; W. H. Nicholls, *Developments in the Marketing of Cheese*, Ia. Agr. Exp. Sta. Res. Bul. 261, 1939, pp. 71–2.

consumption—that of 1925 was 19 per cent higher than that of the average for 1910–1914.[28]

During the period of 1924–1929 the per capita consumption of fluid milk and cream for the country as a whole is reported to have moved to slightly higher levels—0.87 pint per capita per day in 1924 and 0.90 pint in 1939.[29] The depression brought a decline, with a low level occurring in 1934. By 1939 consumption of fluid milk and cream had returned almost to 1929 levels.

This increase occurred at a time when the average age of the population was increasing. It is of interest that a study in Philadelphia indicated an increase from 1924 to 1929 for all age, national, and racial groups in the proportion drinking milk every day. The increase was more marked for adults than for children.[30]

The trend in per capita consumption of fluid milk has been much the same in various regions, even though the per capita level is quite different. This fact is brought out in the data presented in Table 41.

The trend for manufactured dairy products, other than butter, differs somewhat from that of fresh milk. An increase occurred from 1924 to 1928, and the depression brought a drop, but production in 1934 was relatively high and has since steadily increased. From 1924 to 1939 annual per capita consumption has increased by 33 per cent.

The rate of increase has not been the same for all products. Of great interest is the rapid expansion in the consumption of evaporated milk.

> In 1921 the canned milk consumed in the United States represented about 2.1 billion pounds of milk equivalent. This totaled about 9 percent of the milk purchased by consumers in liquid form. By 1939 the consumption of canned milk represented 4.8 billion pounds of milk equivalent, or more than 13 percent of the total purchases of fresh and canned combined.[31]

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[28] H. A. Ross, *Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York,* U. S. Dept. Agr. Tech. Bul. 73, 1928, pp. 16–7.

[29] U. S. Bur. Agr. Econ., in *Consumption of Agricultural Products,* 1941, publishes estimates based on less adequate data for the years 1909–1923. The published estimates do not include the consumption of skim milk and buttermilk. The latter is especially important in the South, especially for farm families. (Pounds are converted to pints on the basis of 1.075 pounds per pint.)

Methods of estimating fluid-milk and cream consumption are still far from satisfactory. For discussion see G. W. Sprague and G. G. Foelsch, *Estimating Yearly Changes in Fluid Milk and Cream Consumption in Cities and Villages,* U. S. Bur. Agr. Econ. (mimeo.), 1938.

[30] Pa. Agr. Exp. Sta. Bul. 245, p. 10.

[31] Agr. Mktg. Service, *Marketing Activities,* February, 1941, p. 5. Canned milk includes condensed as well as evaporated milk. The latter, however, is now

*Table 41. Estimated Consumption of Milk and Cream in Cities and Villages, by Geographic Divisions, 1921 and 1923 to 1940 **

Year	Average Daily Consumption per Capita †					
	United States	North Atlantic	North Central	South Atlantic	South Central	Western
	pints	*pints*	*pints*	*pints*	*pints*	*pints*
1921 ‡	0.83	0.94	0.88	0.59	0.63	0.84
1923	.83	.94	.88	.59	.62	.84
1924	.85	.95	.89	.62	.64	.87
1925	.85	.95	.91	.60	.63	.88
1926	.86	.97	.92	.60	.64	.89
1927	.87	.98	.93	.60	.65	.87
1928	.87	.99	.92	.61	.67	.86
1929	.90	1.01	.93	.66	.71	.87
1930	.88	.98	.90	.67	.71	.86
1931	.85	.97	.87	.66	.70	.82
1932	.85	1.02	.87	.64	.68	.71
1933	.85	1.01	.83	.63	.70	.74
1934	.79	.95	.78	.61	.58	.75
1935 §	.81	.96	.82	.63	.61	.76
1936	.83	.98	.85	.64	.63	.77
1937	.84					
1938	.84					
1939	.85					
1940 ‖	.84					

* *Consumption of Fluid Milk and Cream in Northeastern Marketing Areas* (mimeo.), 1942.

† Based on data compiled by the Bur. Agr. Econ., U. S. Dept. Agr. For 1937–1940, the estimates were made by the Agr. Mktg. Service. Cream is converted to its milk equivalent. These estimates are not intended to represent more than comparative figures which, taken together, show the general trend of consumption. Quantities of milk here shown as consumed are those indicated by reports from local boards of health. Current estimates of sales of milk and cream from farms and current estimates of milk production by cows not on farms, if confirmed by further study, would indicate a lower level of milk consumption in the South, particularly in the South Atlantic States.

‡ Not available for 1922.

§ Revisions of estimates previously released.

‖ Tentative.

There is no reason to suppose that the trend in the consumption of evaporated milk is about the level off. A considerable change has occurred in the price differential of evaporated and fresh milk:

> In 1921 a quart of fresh milk at 14.6 cents cost 2 cents more than 14½ ounces of evaporated milk. In 1940 a quart of fresh milk deliv-

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by far the more important—it was 63 per cent of the total canned milk in 1919, and in 1941 was 90 per cent.

ered at 12.8 cents cost 5.8 cents more than a can of evaporated milk.[32]

Cheese consumption has also been moving upward steadily. Vial reports a 30 per cent increase during the past decade. (See Table 42.) Furthermore, blended and processed cheese have constituted a much larger proportion of the total.

Table 42. Estimated per Capita Consumption of Manufactured Dairy Products in the United States, 1869 to 1938 *

	Cheese	Condensed and Evaporated Milk	Commercial Ice Cream †
	pounds	*pounds*	*pints*
1869–1873	2.92	0.10 ‡	
1874–1878	2.89		
1879–1883	2.89	0.27 ‡	
1884–1888	3.12		
1889–1893	3.47	0.73 ‡	0.08 ‡
1894–1898	3.15		
1899–1903	3.98	2.51	0.56 ‡
1904–1908	3.77	3.74	1.20 ‡
1909–1913	4.17	5.47	2.64 ‡
1914–1918	4.21	9.03	5.92 ‡
1919–1923	4.25	10.05	12.24
1924–1928	4.59	11.92	15.60
1929–1933	4.51	13.68	13.12
1934–1938	5.35	16.16	14.72

* E. E. Vial, *op. cit.* pp. 34–35, 38, 45. Five-year averages were computed by C. Van Syckle.
† Commercial production only.
‡ Census years only: 1869, 1879, 1889, 1899, 1904, 1909, 1914.

There has been some expansion in the volume of products made from skim milk—it has been condensed or powdered. Vial [33] reports 14.0 pounds per capita of skim milk equivalent going to these products in 1921 and 72 pounds in 1937.[33] Even so, only 17 per cent of the total skim milk and buttermilk was thus utilized, the remaining 83 per cent going to livestock or being discarded. Furthermore, not all the manufactured products are being used for human food. Much goes to livestock feeding, and some to

[32] *Ibid.*

L. Spencer, "Competition between Fresh Milk and Canned Milk," *Proc. Intern. Ass. Milk Dealers*, Vol. 32, December, 1939, points out that precise information is not at hand to verify the fact that this widening price differential is responsible for the increase in the consumption of canned milk.

[33] *Op. cit.*, p. 14.

non-food uses, such as plastics, textile fabrics, etc. Those products used for human food for the most part reach consumers through bakers and confectioners.

Shifts of two general types are occurring in the use of dairy products. An increasing proportion of the milk is leaving the farm in the form of whole milk rather than cream, and an increasing proportion of the whole milk sold is going into manufactured dairy products. In 1930 the proportion was 34 per cent. The estimate for 1942 is 53 per cent.[34]

Butter and Other Fat Consumption[35]

The annual consumption of butter was at a high level at the close of the last century. Since that time a slight decline is reported. During the early period for which estimates have been made, errors may have been high. A larger proportion of the butter was consumed at the farm where produced or was sold locally in small amounts. In such cases accurate information is difficult to secure.

Lard consumption, according to the data given in Table 43, has been at much the same level during the past 40 years. Estimates on lard consumption are, however, far from satisfactory. Lard rendered and used on farms or rendered by local butchers is not included in the estimate. So far as such production has been declined, as seems highly probable, the estimates for the earlier years are understated, relative to later estimates. Until 1925 lard was an important ingredient of margarine and has been important in the manufacture of shortening compounds.[36]

The consumption of other edible fats and oils, which include fish oils and salad oils, shows some tendency to increase, although the trend is not marked or consistent for the period for which data are available. Cottonseed oil is the largest single item. The importance of soy bean oil has recently been increasing.

Margarine consumption has increased somewhat. World War I brought it to a relatively high level, from which it later declined. An increase has occurred since the middle twenties. More attention is being given to the fortification of margarine with Vitamin A. This improvement may bring an expansion of consumption, even in the face of high taxes on

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[34] *Marketing Activities* (monthly publication of the American Marketing Administration), May, 1942, p. 8.

[35] Important literature on fats includes K. Snodgrass, *Margarine as a Butter Substitute,* Fats and Oils Studies 4, Food Research Institute, 1930; G. M. Weber and C. L. Alsberg, *The American Vegetable-Shortening Industry,* Fats and Oils Studies 5, Food Research Institute, 1934.

[36] A. Dewees, *Oleomargarine,* U. S. Bur. Agr. Econ. (mimeo.), 1936, p. 13.

Table 43. Apparent Consumption per Capita of Food Fats in the U. S., 5-Year Averages 1889 to 1938 *

Calendar Year	Butter †	Lard ‡	Other Edible Fats and Oils §	Compound ‖	Margarine ¶
1869–1873	12.0				
1874–1878	14.2				
1879–1883	15.6				
1884–1888	16.4				
1889–1893	17.4				0.78
1894–1898	19.3				0.80
1899–1903	19.1	12.3			1.16
1904–1908	18.6	12.5			0.78
1909–1913	17.6	11.8	12.6 **	9.05 ††	1.40
1914–1918	16.4	11.5	17.5	10.50	2.14
1919–1923	16.3	12.5	14.2	7.78	2.50
1924–1928	17.6	13.1	16.6	9.14	2.20
1929–1933	17.8	13.5	16.5	8.84	2.18
1934–1938	17.1	11.1	19.5	11.60	2.84

* Data in this table were assembled and the 5-year averages computed by C. Van Syckle, *op. cit.*, p. 91.

† U. S. Dept. Agr. Tech. Bul. 722, 1940, pp. 29–30. Data include both farm- and factory-made butter.

‡ *1940 Agricultural Statistics*, p. 413. Lard does not include that produced and used on the farm or that produced by the local butcher.

§ *Consumption of Agricultural Products*, 1941, pp. 10 and 14. Salad oils are included.

‖ For the years 1912 to 1918 see A. Dewees, *Fats, Oils and Oleaginous Raw Materials*, U. S. Dept. Agr., Stat. Bul. 59, 1937, p. 12; for the years 1919 to 1938 see *1940 Agricultural Statistics*, p. 382.

¶ For the years 1889 to 1908 see A. Dewees, *Oleomargarine*, U. S. Bur. Agr. Econ., 1936 (mimeo.), p. 3; for the years 1909 to 1938, see *1940 Agricultural Statistics*, p. 458.

** Based on incomplete data.

†† For 1912 and 1913 only.

colored margarine.[37] Such expansion is likely to be affected greatly by income level.

Data reported in Table 43 indicate an increase in fat consumption. The picture is, however, far from complete. Fat meat, such as bacon and fat pork, needs to be added. In addition it should be noted that more fat in earlier years was purchased with the meat. Pork cuts in most cases now have much of the fat trimmed off and some attention has been given to breeding animals with less fat. Furthermore, it is highly probable that there is now more household waste of fat than in earlier years. This would be a natural result of the decline in home baking and a stress, by advertisers of baking fats, that whiteness of fat is essential to ensure the kind of biscuits and muffins "to be proud of."

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[37] For discussion see Chapter 22.

Vegetable Consumption[38]

Vegetable consumption has been transformed in the past fifty years. Rapid transportation and refrigeration have opened up to the American consumer a year-round garden that shifts its location with the season but at all times provides a variety of vegetables, crisp and colorful. This change along with the development of canning and freezing has reduced the importance of storing cabbage, turnips, and squash for winter consumption, of preparing sauerkraut and pickled vegetables of various kinds, and of drying peas, beans, and corn.

The absence of fairly complete data on the extent of family-furnished fruits and vegetables makes depiction of change in per capita consumption of fresh fruits and vegetables less accurate than that of many other products. The increase in commercial crops has been conspicuous. For example, the acreage of vegetables grown for sale in the United States increased 165 per cent from 1919 to 1934, while the population increased only 20 per cent.[39] From 1909 to 1935 truck crops moving directly to the market rose 174 per cent, while the total population increased 42 per cent and the non-farm population increased 59 per cent. In general the proportion of the total crop going to the market to be sold to consumers as fresh produce has increased and that going to manufacturers has shown a tendency to decline.[40] (See Fig. 4.)

Marked differences have occurred in the consumption trends of the various vegetables. Of those vegetables reported in the *1940 Agricultural Statistics* the percentage increase from 1919 to 1938 has been relatively high for asparagus, carrots, peas, cauliflower, lettuce, and celery. In the same period a decline or small percentage increase occurred in the per capita consumption of spinach, cabbage, and corn.[41] Cabbage ranks at the top in pounds per capita, and onions and tomatoes are next in order. The greatest absolute increases for the period came from lettuce, carrots, tomatoes, and celery.

Duddy and Revzan studied trends in fresh vegetables in the Chicago market. They found the trend of cucumbers and late cabbage downward and of early cabbage upward. Spinach was found to have had a remarkable expansion period, which appears to have occurred, by the way, before Popeye, the sailorman, was created to demonstrate its powers. By 1927 there was evidence of a retrograde movement.

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[38] U. S. Dept. Agr., *Consumption of Fruits and Vegetables in the United States,* Agr. Econ. Bibl. 56, 1935.

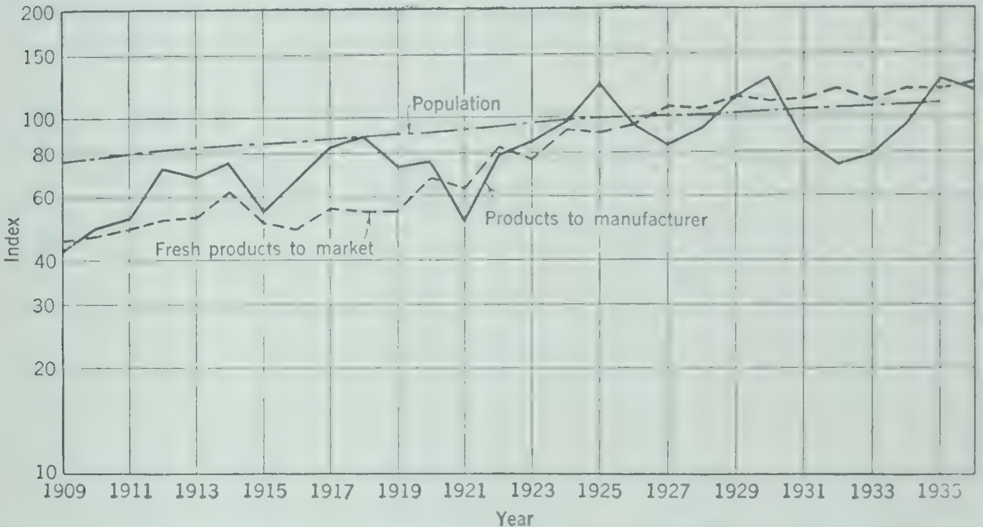
Fresh vegetable consumption is usually stated as a per capita consumption of commercial crop by non-farm population.

[39] N. J. Agr. Exp. Sta. Bul. 660, 1939, p. 5.

[40] See R. G. Bressler, Jr., and J. A. Hopkins, *Trends in the Size and Production of the Aggregate Farm Enterprise,* W.P.A. Nat. Res. Proj. Report A 6, 1938.

[41] *1940 Agricultural Statistics,* p. 300.

Canned vegetables have been increasing in importance but not at the same rate of speed in recent years as fresh vegetables. The apparent per capita consumption per annum of the major commercially canned vegetables, excluding tomato juice, sauerkraut, pickles, and relishes, rose from 14.2 pounds for the period 1919–1923 to 19.3 pounds for 1934–1938. In the latter periods tomatoes, peas, and corn constituted approximately 60 per cent of the weight of canned vegetables. Sales of frozen vegetables have been increasing in importance.



R. G. Bressler, Jr., and J. A. Hopkins
Trends in the Size and Production of the Aggregate Farm Enterprise
W.P.A. National Research Project, Report A.6, 1938.

FIG. 4. Index of population and truck crops moving directly to the market and to manufacturers, weighted according to production. (Average for 1924–1929 equals 100.)

Dried beans are the only "vegetable" for which an increase in consumption is reported. For the 5-year period 1909–1913 the annual per capita consumption was 7.2 pounds, and for a corresponding period 1935–1939 it was 9.7 pounds.[42] It seems highly probable that an increasing proportion of beans has been purchased in canned form.

Fruit Consumption

Fruit like vegetable consumption has been moving to higher levels. Here also some old standbys have become less important, and some newcomers have moved to front-rank positions. A major decline has occurred in annual per capita consumption of apples: 50.6 pounds for the period 1919–1923 and 38.5 pounds for the period 1934–1938. In spite of this decline, however, apples are the most important single fruit in the American diet.[43]

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[42] *Consumption of Agricultural Products, op. cit.*, p. 13.

The most marked expansion has occurred in the consumption of citrous fruits.

> In those countries where citrus fruits were not grown, oranges and lemons, from a rare and costly luxury which only crowned heads or princes of the Church could permit themselves, had, by the seventeenth and eighteenth centuries become plentiful and cheap enough to place them within the reach of the aristocracy and the rich bourgeoisie. It was only during the second half of the nineteenth century that they became available to the lower middle classes, and not until the end of the nineteenth and the beginning of the twentieth century did they become a fruit of the common people.[44]

Recent increases in consumption are as follows:[45]

	Pounds Consumed Annually		
Period	*Oranges*	*Grapefruit*	*Lemons*
1919–1923	17.4	4.9	3.4
1924–1928	20.2	5.7	4.2
1929–1933	23.5	6.8	4.0
1934–1938	31.5	10.7	4.7

The consumption of both bananas and grapes has increased somewhat, but that of cherries, peaches, pears, plums, prunes, strawberries, and melons, apart from year-to-year fluctuations, continued at much the same level from 1919 to 1938.

An increase in the consumption of canned fruit has also occurred. The B.A.E. reports a per capita consumption of 3.1 pounds in 1909 and 14.8 pounds in 1939.[46] Peaches and pineapple are the most popular canned fruits.

The increase from 1928 to 1938 in the per capita consumption of canned fruit juices, including tomato juice, has been phenomenal: 0.27 pint in 1928, 1.4 pints in 1933, and 8.2 pints in 1938.[47] In 1938 tomato and grapefruit juice made up approximately two-thirds of the total supply.

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[43] *1940 Agricultural Statistics*, p. 298.

Duddy and Revzan, *op. cit.*, p. 29, report on annual per capita consumption of 116 pounds of the period 1904–1908.

[44] S. Tolkowsky, *Hesperides; A History of the Culture and Use of Citrus Fruits*, 1938, p. 313.

[45] Five-year averages by C. Van Syckle, *op. cit.*, p. 129. Basic data are from *1940 Agricultural Statistics*, p. 298. These quantities do not include commercial juices made from these fruits.

[46] *Consumption of Agricultural Products*, p. 11.

An upward trend in the consumption of dried fruit is also reported: from 3.9 pounds per capita in 1909 to 6.6 pounds in 1939.[48]

Beverage Consumption

One report places the consumption of coffee in 1830 at 3 pounds per capita.[49] Throughout the years 1909–1939 consumption continued to move to higher and higher levels: 9.6 pounds in 1909 and 14.9 pounds in 1939.[50] The percentage of families in Milwaukee using coffee increased from 87.0 per cent in 1936 to 95.8 per cent in 1940; at the same time average monthly consumption of those reporting its use increased somewhat.[51]

The consumption of tea appears to have been declining for several decades. In the report by the U. S. Bureau of Foreign and Domestic Commerce [52] the high point in consumption occurred during the period 1881–1890, at which time an annual per capita consumption of 1.34 pounds is reported. A consumption of 1.1 pounds and 0.7 pound is reported for the years 1909 and 1939, respectively.[53]

So-called "soft" drinks are an important characteristic of American consumption. Per capita value of manufacturers' output for these beverages was $2.80 in 1939, $0.89 in 1933, $2.24 in 1929 and $2.21 in 1921.[54] Per capita expenditure is now probably close to that for coffee.

Among alcoholic beverages, beer and other malt drinks are by far the most important. In 1939 the value of manufacturers' output of these drinks was $526 million; whereas that of wines, distilled, and other alcoholic beverages was $138 million. A great many factors, including prohibition legislation, make the census data very unsatisfactory for measuring consumption trends.

Sale of Vitamin Concentrates

Frequent comment is made of the increasing importance of vitamin tablets and other concentrates. The value of manufacturers' output in recent years has been as follows:

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[47] U. S. Dept. Agr., Division of Marketing and Marketing Agreements, *Annual Statistics Relating to Canned Commodities, 1928–29 to 1938–39*, 1940 (mimeo.), pp. 6, 10, 11.

[48] *Consumption of Agricultural Products,* 1941, p. 11.

[49] U. S. Bur. For. Dom. Com., *op. cit.,* p. 48.

[50] *Consumption of Agricultural Products,* p. 13.

[51] *1940 Consumer Analysis of the Greater Milwaukee Market,* p. 7.

[52] *Op. cit.,* p. 48.

[53] *Consumption of Agricultural Products,* p. 13.

[54] U. S. Biennial Census Manufactures.

	Per Capita
1935	$0.127
1937	.210
1939	.321

The rate of increase is fairly rapid but the consumption level is still low. Assuming that manufacturers got 50 cents out of every $1.00 spent by consumers; per capita consumer expenditure during 1939 was 65 cents.[55]

Business Cycle and Food Consumption

Attention has been concentrated for the most part on long-run changes. It is also of interest to consider what happened as this economy shifted from prosperity in 1929 to depression in the early thirties and then to more prosperous times. In considering these shifts it should be borne in mind that food consumed in any one year, apart from the changes in stocks and in exports and imports, equals the food produced unless products raised are not harvested. During the shift from prosperity to depression the price of food fell and so did the income of many families. Uncertainties tend to create an environment in which a large number of people feels it important to economize. Many farm as well as some village families tended to increase the production of their own food supply, and families in general to do more food processing and preparation for themselves. These changes have been discussed in earlier chapters. In some cases, quite apart from rural families, a decrease in the amount of food purchased occurred, some families having less to eat than formerly and others merely reducing waste. One might expect a depression would lead to some shift to foodstuffs that provide nutrients at a relatively low cost. In this way, even though prices remained the same, a smaller expenditure would provide the same nutrients. This practice on the part of consumers would tend to change the price differentials of joint products, such as the different cuts of meat.

Statistics published by the B.A.E. show an increase in annual per capita consumption of all milk products from 1924 to 1931 and a slight fall in 1932, with the decline continuing to 1936. Drought conditions in 1934 and 1936 are responsible no doubt for some of the decline. During the period 1929–1932 per capita consumption of fresh milk in cities and villages tended to fall somewhat, the low point occurring in most regions in 1934. Butter consumption throughout the middle thirties remained at much the same level. It is a well-known fact that butter prices during

[55] No data have been found reporting price changes of these products. The behavior of various prices during the years covered here and the nature of the industry would suggest that prices per unit during this period probably have not changed greatly, at least not from 1937 to 1939. If this is true, the data indicate an increase in quantity consumed of approximately 50 per cent in two years.

this period fell much more than milk and cream prices. The depression brought an increase in the consumption of evaporated milk, but this increase appears to be part of a long-run trend.

Mitchell and Burns,[56] in describing the effect of the depression, point out that the contraction from 1929 to 1933 engulfed the entire economic system. Of food they write:

> The production of foodstuffs, which had been relatively immune to preceding cyclical contractions, shows the impress of this depression unmistakably. For example, milk receipts in the New York Metropolitan area, which have been recorded monthly for 44 years, show their first cyclical decline in the Great Depression though it was not until January 1932 that the shrinkage began.

During the 3-year period following 1929 beef consumption moved yearly to lower levels. The downward shift may have been merely a continuation of general downward trend apparent in the earlier years. Throughout the early part of the depression pork consumption was maintained at a relatively high level. This may have been influenced by the tendency during depression to shift demand to cheaper meats. But production conditions for both these meats would have to be studied to account for the changes. Both of them have well-defined production cycles. It may be that the depression coincided with the low point of the beef production cycle.

A break in an upward trend at the point of the depression would indicate that the depression might be a causal factor. On this basis one might judge that the depression caused a falling off in the consumption of sugar and syrup, fresh fruits and fresh vegetables. Duddy and Revzan [57] report a reduction in the consumption of 14 truck crops from a level of 161 pounds per capita in 1929 to 132 pounds in 1933.

Tebbutt has attempted to indicate the change in food consumption in the country as a whole during the period 1929–1932, by the change in volume of railroad shipments of selected foods.[58] An index of tonnage of selected foods was used and adjusted for changes in population.[59] A downward trend was shown from 1928–1929 to 1931–1932 in the consumption of cereals, apples, meat, and potatoes. This, however, cannot be laid wholly to the depression, for this trend was apparent prior to and following the depression. Depression conditions, however, may have served to stimulate the decline. The consumption of oranges and grapefruits for the period 1929–1932 was at a peak in 1929, but almost as high in 1931 as in 1929. Shipments in general of bananas, grapes, and fresh vegetables were relatively low in 1931 and 1932. Butter shipments were maintained at much the same level but those of eggs, cheese, sugar, and table syrup have decreased. Shipments of beverages reached a very low point in 1932.

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[56] *Production during the American Business Cycle,* Nat. Bur. Econ. Res. Bul. 61, 1936.

[57] *Op. cit.,* p. 47.

[58] A. R. Tebbutt, *The Behavior of Consumption in Business Depression,* Har. Univ. Bus. Res. Studies 3, 1933, p. 6. See also R. S. Vaile, *Research Memorandum on Social Aspects of the Depression,* Bul. 35, 1937. This report was prepared under the direction of the Social Science Research Council, Committee on Studies in the Social Aspects of the Depression.

[59] During this period a slight increase occurred in tonnage per car. Trucking was increasing. Measures are not available for determining the extent to which various products shifted from railway transport to trucking.

The National Bureau of Economic Research has attempted to measure changes in physical volume of agricultural production for the United States from 1929 to 1935. There was little tendency for farm production as a whole to fall prior to 1932, although the production of grain fell steadily from 1929. The marked decrease did not occur until after 1932, when the worst of the depression was past. (See Table 44.) It was probably related to the crop-reduction program of the Agricultural Adjustment Administration. The production of fruits and vegetables, meat shipments, and dairy and poultry, as shown by these data, more than kept pace with the increase in population.[60]

*Table 44. Physical Volume of Agricultural Production in the United States, 1929 to 1934 (1929 Equals 100)**

Year	Population	Grains	Fruit, Vegetables and Truck	Meat and Animal Shipments	Dairy and Poultry	Total
1925	100.0	100	100	100	100	100
1930	100.9	91	109	100	102	100
1931	101.6	96	115	106	104	106
1932	102.2	91	105	105	102	99
1933	102.9	66	102	107	103	96
1934	103.6	44	107	114	99	90
1935 (est.)	104.3	66	119	78	98	93

* C. A. Bliss, *Production in Depression and Recovery*, Nat. Bur. Econ. Res. Bul. 58, 1935, p. 5.

In examining food supply during the period following 1929 several facts should be noted:

1. There is evidence of some falling off in total food supplies. Some of this decline is probably a part of long-time trends.

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[60] The study of Duddy and Revzan, *op. cit.*, indicates a greater decline in the consumption of truck crops than is indicated here.

2. Supplies of fresh fruits and vegetables were certainly smaller than they would have been had all produce grown been harvested. In some cases farm prices were too low to cover harvesting and transportation costs.

3. Any tendency to shift to the more economical foods did not reverse the trend toward a lower per capita consumption of cereals and potatoes, foods providing certain nutrients at relatively low cost. However, the depression may have served to slacken, at least temporarily, the shift away from cereals and potatoes and other relatively inexpensive foods.

4. The consumption of some "luxury" foods declined. For example the consumption of bottled beverages and ice cream fell off markedly; from 1929 to 1933 the per capita consumption of ice cream fell 43 per cent; from 1933 to 1937 it rose 28 per cent. The consumption of sugar in its expensive forms was affected; candy in fancy packages fell 39 per cent from 1929 to 1933; and by 1937, it was somewhat above the 1929 level, while the consumption of candy bars from 1929 to 1933 fell only 11 per cent.[61]

> Exclusive cafes and tea rooms suffered a noticeable loss of patronage and also a reduction of twelve cents in the average check. The medium price eating places, on the other hand, experienced no measurable falling off in the number of patrons and a decrease of only three or four cents in the average check. Persons who in 1929 paid eighty cents for a luncheon in an exclusive tea room were satisfied in 1931 with a thirty-nine cent luncheon in a medium price restaurant.[62]

Shifts in Food Consumption in the United States Compared with Those in Some Other Countries[63]

Cereals in many countries have been described as the staff of life. Studies show, however, that a general decline in their importance has been occurring in many countries. During the period 1909–1933 "world" per capita consumption of the principal bread cereals declined 9.2 per cent. The decline for rye and rice is much greater than that of wheat, and cereal consumption fell much more in the United States than in many other countries.[64]

[61] See Chapter 3 above.

[62] R. S. Vaile *et al., Impact of the Depression on Business Activity and Real Income in Minnesota, Minneapolis,* Univ. Minn. Studies in Econ. and Bus., 1933, p. 48.

[63] An extensive comparison of national diets is to be found in *The Final Report of the Mixed Committee of the League of Nations.* The countries include those of the British Empire and those in Western and Northwestern Europe. Little statistical information is available in food consumption of people living in Central and Eastern Europe or in Asia and Africa.

[64] See, for example, M. K. Bennett, "World Wheat Utilization Since 1885–1886," *Wheat Studies of the Food Research Institute,* Vol. 12. (Russia is not in-

According to estimates of the proportion of the total calories derived from cereals and from wheat in the diet of various countries, it appears that cereals are less important in the diet of the people of the United States than in the diet of any European country and probably of any other large country. Since cereals are a relatively inexpensive food, a low proportion of a diet from cereals is commonly assumed to indicate a relatively high real income. This fact, however, tells us nothing concerning the adequacy of the diet. The importance of wheat among the cereals is also looked upon by some as being especially significant. The protein of wheat does rank above that of certain other cereals. Moreover, wheat is relatively more costly than rice, rye, and maize, and a high proportion of rye, especially in European countries, indicates that people have been forced to accept a relatively low cost diet:

> In Asia, rice remains, along with millet, the basis of the diet; yield in calories per acre is high and rice is the preferred cereal of the population. Elsewhere, wheat has gradually gained supremacy. Wheat, at one time the bread only of the wealthy, has been increasingly demanded by the lower-income groups of the population as their standard of living has improved.[65]

There are signs that wheat is increasing in favor among other people.[66]

On the basis of recent changes in cereal consumption Western countries, prior to World War II, were put into three categories:

(*a*) Those with a relatively high real income, such as the United States, British Isles, France, Canada, and Australia, whose wheat consumption as well as total cereal consumption has been declining.

(*b*) Those formerly using a large proportion of cereals, such as rye, barley, maize, which countries with rising real income have tended to reduce their consumption of rye and to increase somewhat their consumption of wheat. This change, during the early postwar period, was occurring in Argentina, Switzerland, Norway, and Poland.

(*c*) Those which from 1921 to 1930 tended to increase the consumption of wheat but since 1930, with depression conditions and growing nationalism and trade restriction, have tended to reduce the consumption of wheat and presumably to increase consumption of cheaper cereals. In this group were Italy, Germany, Roumania, Czechoslovakia.[67]

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cluded in this estimate.) See also M. K. Bennett, "Wheat in National Diets," *Wheat Studies of the Food Research Institute,* Vol. 18, October, 1941, pp. 35–75.

[65] League of Nations, *op. cit.*, p. 101.

[66] *Wheat Studies of the Food Research Institute,* Vol. 7, 1930.

[67] See League of Nations, *op. cit.*, pp. 103–5.

The trend of sugar consumption in many European countries has been upward, although the level differs greatly from one country to another, being in 1928–1929 especially low in Italy.[68]

Because of the special nutritive merits of milk, changes in its consumption are of special interest. The League of Nations reports:[69]

> During the past fifty years there has been a worldwide increase in the production of milk. The increase in output has far exceeded the growth in population . . .

On the whole, data of liquid milk consumption in various countries are very inadequate. According to one estimate, consumption per capita in Great Britain rose by 33 per cent between 1890 and 1907–1908, or at an average of 1.8 per cent per annum; and by an average just under 1 per cent per annum from 1924–1925 to 1930–1931.[70] In other words, the rate of increase was slower in the postwar than in the prewar period. The trend in consumption of cheese was upward during the postwar period in almost every European country, whereas butter consumption was relatively stable.

After recognizing that estimates of vegetable production and consumption are notoriously unreliable, the League of Nations[71] goes on to state:

> There remains no doubt that, since the war, there has been a very large increase in the consumption of vegetables in all Western countries . . . production has tended to become more specialized, qualities have been standardized, transport facilities improved and marketing better organized. In addition, these factors, together with the development of particularly early- and late-maturing strains, have contributed much towards the reduction of seasonal fluctuations in the consumption of vegetables.

The League of Nations report makes two interesting comments on changes in vegetable consumption.

> (*a*) Vegetables have come to be used less as a source of energy than as a source of refreshment. This explains, in part, the increase in the consumption of tomatoes, cucumbers, and celery and the decline of the heavy vegetables. (Increased regional specialization and less need for storing vegetables for several months are probably responsible for this trend.)
>
> (*b*) Vegetables whose consumption has increased require little if any time in cooking.

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[68] United States Cane Sugar Refiners' Association, *Sugar Economics, Statistics and Documents*, 1938, p. 3, reports the retail price of sugar during 1936 in the United States at 5.6 cents a pound and 21.8 cents a pound in Italy.

[69] *Op. cit.*, p. 116.

[70] R. L. Cohen, *The History of Milk Prices*, 1936.

[71] *Op. cit.*, p. 125.

As in the United States, there are indications that fruit consumption in many European countries is increasing, especially that of citrous and subtropical fruits. In many other countries during the years 1925–1934, the consumption of citrous fruits and bananas showed a marked increase even though the later period included the depression and these fruits had to be imported. In Eastern and Southern Europe the consumption of citrous fruits has been low. The Mixed Committee of the League of Nations expresses the opinion that the upward trend in the consumption of other fresh fruits is unmistakable.

In European countries as a whole, much the same trends as in the United States were apparent in food consumption. This is to be expected since much of the change has been the result of increased trade and better refrigeration.

The Shifting American Diet

As one takes an all-over view of the shifting American diet during the past few decades, several facts stand out:

(*a*) The marked decline in the consumption of cereals, Irish potatoes, and apples and the smaller decline in the consumption of meat.

(*b*) The marked increase in the consumption of sugar, vegetables, citrous fruits, and coffee and the small increase in consumption of dairy products in general with notable increases occurring with ice cream and evaporated milk.

As one views these changes several questions arise. What have these changes done to the nutritional quality of the diet? What factors have promoted these changes? In what direction are we moving?

Changes in Nutrients in the Food Supply

Taylor, after reviewing dietary changes (among others the modern milling processes, the increased consumption of refined sugar, and the decreased consumption of pork), concludes:[72]

> There have been few items the consumption of which has provided increased quantities of thiamin. . . . It is doubtful whether milk consumption is higher than it was in some earlier periods, though probably it is in cities. The consumption of nuts, which are rich in thiamin, has perhaps increased to some extent. . . .
>
> All in all, when we view the diet in terms of thiamin . . . it is clear that there have been few instances of increases, and these are light in comparison with several decreases which were heavy. . . .

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[72] A. E. Taylor, *op. cit.*, p. 84.

The Council on Foods and Nutrition of the American Medical Association, in reviewing this change, states:

> The parish poor of England in 1839, according to records of foods . . . probably received about 650 to 850 international units of vitamin B_1 daily, whereas supposedly good diets of people in moderate circumstances in England in 1939 supplied only about 450 to 550 international units of vitamin B_1. Stiebeling and her associates have shown that vitamin B_1 intake of contemporary families with liberal food allowances in the United States is not more than from 460 to 740 international units per man per day, and that persons in the lowest income groups obtain an average of only 280 to 330 international units. This decided reduction in the vitamin B_1 intake must be attributed to the prevailing use of refined sugar and highly milled wheat products. . . .[73]

The increase in the consumption and the all-year-round supply of fresh fruits and vegetables have greatly increased the intake of Vitamin C. Winter diets in this respect have been greatly improved, and spring tonics, including weird molasses and sulphur mixtures, in many communities have passed into the realm of grandmother's tales.

Factors Effecting Change

The factors bringing change in the consumption of various foods are likely to differ widely. The decline in the consumption of one food such as bread may check an increase or bring a decline in a complementary food such as butter. Some people might lay the decline in meat consumption to lessened activity and others might see early nutritional education as an important factor. Crawford thinks that the decline in the consumption of Irish potatoes may be due partly to a misconception of their nutritive value, that probably they have been stressed merely as starchy foods. The decline in the consumption of apples may be due wholly to expansion in other fruits and to the reduced need of a winter fruit supply that would store well. The decline in cereal might be explained in terms of reduced need for calories, but some other explanation would have to be sought for the increase in the consumption of sugar. Improvement in transportation has had an important part in the increased consumption of citrous fruits; for grapefruit an improvement in quality has also been highly important. Recently introduced processing and packing methods have been important in popularizing cheese.

[73] "Nutritionally Improved or Enriched Flour and Bread," *J. Am. Med. Ass.*, June, 1941, pp. 2849–50.

The failure of fluid-milk consumption to increase appreciably even though nutrition education has stressed it considerably, may be due in part to the falling birth rate, resulting in a considerable reduction of the proportion of young children in the population. In addition, differential birth rates may have had some influence. Among urban families birth rate has been relatively high in some sections of the population whose customary food habits do not include much fluid milk; and it has been relatively high in the South, especially in rural areas where the milk consumption has been relatively low.

Relative prices are also a factor suspected as being important in the increase in the consumption of evaporated over fresh milk. It is of interest that the marked increase in the consumption of fresh fruits and vegetables of the past fifteen years has been accompanied by a decline in their prices, relative to those of other foods. Measured in terms of 1925–1929 prices, as equal to 100, fresh fruits and vegetables in 1940 were 51, meats and fish were 80.4, and dairy products 78.2.[74]

Decline in price plus increase in the consumption of fruits may be basic factors affecting sugar consumption.

Burmeister, in considering the things which contributed to the expansion of winter vegetables, points to four factors:

1. The sharp rise in consumer purchasing power in the northern industrial cities during and following the World War.
2. The development of heating and refrigeration facilities for vegetables in transit from farm to market.
3. A general decline in the prices of and returns from other important agricultural products commonly produced in these areas.
4. The emphasis which has been placed upon the vitamin content and health-promoting qualities of fresh vegetables.[75]

In What Direction Are We Moving?

In gauging the future, it seems most useful to focus attention on the forces making for change of food consumption. These forces, as has already been indicated, are multitudinous, and many are still to be discussed. Education, improvement in economic status of low-income families, and technological change are the major factors likely to affect trends in the near future. The war will probably be an important factor, bringing a marked expansion in the consumption of some foods which so far have been little used, for example, peanut flour, soy beans in many forms, and dried skim milk.

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[74] *The National Food Situation* (mimeo.), 1941, p. 18.

[75] G. Burmeister, "Fresh Vegetables in Winter," *The Agricultural Situation*, Vol. 24, February, 1940, pp. 22–3.

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Food Prices and Consumption

To consumers price represents cost, and to some extent it is an indicator of quality. For the majority of families and for most goods, the higher the price of one product in relation to those of others the lower is the quantity taken. However, if high price is accepted as an index of quality, or if the purchase of expensive products contributes to social prestige, a relative fall in price may reduce the customary quantity taken by some families; and a higher price in time may have the opposite effect. To attain the latter condition a considerable period of time may have to elapse in order to establish the necessary association of superiority, perhaps both social and aesthetic, in the minds of potential consumers.

The Function of Prices

Prices play an important part in regulating consumption, in relating it to supplies and in relating production to demand. An increase in price is in reality a notice to consumers that a given food is relatively scarce and, as a consequence, should be used carefully in order to avoid waste; or that the less important uses should be eliminated and attention given to possible substitutes. A fall in the price of a product is, on the other hand, an invitation to use it more freely in any one use and to introduce less important uses formerly excluded.

Through their response to price, consumers register relative desires for one food or one quality in relation to others. Their response to a given set of prices is a guide to sellers in pricing. Unless low prices are looked upon as an index of an inferior product or poor quality, a surplus may be sold by lowering price, and a short supply makes it possible to sell all that is available at a relatively high price. Prices also serve to notify producers whether to plan to increase or to decrease the quantity of various foods to be produced. Consumption, of course, might be regulated by rationing. In most cases such a system is important only in emergency situations such as characterize war and other disasters. Its discussion will be reserved until Chapter 31.

Economic Theory and Consumers' Response to Price

Economic theory is to a very large extent price theory. In theoretical analysis certain conditions are assumed and deductions made as to consequences which ensue. A basic assumption in economic theory is that people are interested in getting the greatest possible returns from a given stock of resources. These resources include time and energy as well as money. It is also recognized that many different things may be desired, for example, health, comfort, beauty, and social prestige. It is also assumed that, after a certain point is reached, additional units of any good will yield decreasing utility or satisfaction; hence larger and larger quantities will be purchased only if price is dropped to lower and lower levels.

In order to achieve economy in the use of their resources, consumers must appraise the relative utility of goods in the light of ends which are to be achieved. This calls for some awareness of their needs or the ends toward which they strive, a knowledge of alternatives open to them, and a willingness to consider and to weigh these alternatives.

Many things will affect the quantity of a given food that will be purchased in a given market on a given price. Among these are: (1) the number of people who buy in the market; (2) their purchasing power, both its total amount and its distribution among the consuming units, that is, families and individuals; (3) their relative desire for the food in contrast with other products which might be bought; and (4) the relative prices of products available and desired.

If the price of one purchased product changes, price differentials between it and other products change as well as the purchasing power of a given money income. A fall in the price of any one product, other prices remaining the same, will increase the purchasing power of a given number of dollars. A rise in the price of any one product will have the reverse effect. This effect on real income, from the change in the price of one product, becomes important only if it takes a large part of total expenditure, a condition which does not exist for any food in the American diet. Thus a change in the price of one food almost wholly affects its consumption because its price relation to other products has changed.

Quantitative comparisons, made by consumers, of the anticipated utility to be derived from goods probably in large measure take the form of scales of preference in which products being considered are arranged from high to low or low to high, according to greater or less anticipated utility. When things are thought of in this way, choice is made after taking into account both relative utility and relative price. One product may be higher in the preference scale than another; yet, because of its relatively high price, is passed over in favor of a product lower in both preference and price.

Equilibrium in consumption occurs if the consumer, dividing his resources between saving and spending and among foods and other things for current use, achieves a condition in which he would anticipate no increase in satisfaction by a change in the division of his resources. In such a condition if the final units of sirloin steak, added to a week's menu, are judged by the consumer to add twice as much utility as the final units of butter, and if the additional units of steak cost twice as much as the additional units of butter, there would be no advantage in shifting from less steak to more butter or vice versa. But, if the additional steak is judged to bring three times the satisfaction that might be derived from an additional unit of butter, advantage will be derived from a decrease in the consumption of butter and an increase in the consumption of steak. Persons are often heard to remark: "Taking present prices into account, I would rather have more of this." They are comparing the probable satisfactions to be derived from additional units of goods, sold at specified prices, and are attempting to move somewhat closer to an equilibrium in consumption.

In general the assumption is made that the higher the price the lower the quantity of a given food that consumers in a market will take. There is a good deal of evidence to support this belief, but relatively little is known concerning the magnitude of the change in quantity which is related to the change in price nor how great must be the change in price in order to dispose of a given increase in quantity of a product. Although some notable advances have been made, for example, those by Henry Schultz, *The Theory and Measurement of Demand,* methods of measuring the relationship between price and quantity purchased are still in a preliminary stage.

Another aspect of consumers' response to price needs to be mentioned. The kind of food for which people are willing to pay and the amount that they are willing to spend depends in some measure on the nature of the payment. Some people are of the opinion, for example, that students in a cafeteria line, wherein the price of each item is weighed, spend less money and get poorer meals than they would if they paid a weekly sum and ate the meals which were served. It is reported that some subsidized feeding stations in England during the war have found it advisable to discontinue cafeteria service and to serve only meals; otherwise those eating them, in an attempt to economize, stint themselves and do not get adequate food.

Groups Interested in Consumers' Response to Price

Consumers' response to price is a matter of considerable interest to several groups in both short- and long-run planning. Many products are seasonal. Perishable foods which cannot be converted into a durable form by canning, freezing, or some other means must be sold for what they will bring. A part of the product, of course, may be destroyed or not harvested in an effort to get higher returns for what remains. The desirability of such a policy to sellers depends on how much consumers are willing to pay for various quantities at different periods. The advisability of moving a part of the available supply into storage with the expectation of sale later will depend in large measure on the effect of such action on present and future prices.

Producers and other sellers would like to know, for the various markets in which they sell their products, how much additional quantity could be sold if the price were lowered and what falling off in quantity purchased would occur if the price were raised; or how an increase and conversely a falling off in quantity to be sold would affect the price. The effect on farmers' income of restricted production or of selling agricultural products at one price in one market and at another price in another market is likely to be vague and confused unless something is known of consumers' response to prices in the various markets.

Producers are especially interested in the effect of the price of their product in the relation to the price of substitutes which might be used, for example, the relationship of consumption to relative prices of fresh and canned milk or of butter and margarine.

Producers, furthermore, study market prices in order to determine price differential between grades.[1] They would like to know how much additional returns they would get if quality were improved.

In addition, those interested in raising or maintaining the adequacy of family diets would like to know how change in the price of various foods is likely to affect consumption. Knowledge of such responses should help in perceiving the effect on consumption of a subsidy program to lower the price of any product in order to ensure more adequate diets. It should aid also in arousing people to take measures to remove conditions that make prices unnecessarily high, thus checking the consumption of foods important to an adequate diet. Knowledge of consumers' response to price change would give some index of their knowledge of substitutes and would indicate the need for education in this matter.

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[1] See, for example, Conn. (Storrs) Agr. Exp. Sta. Bul. 227, 1938; Cornell (N. Y.) Agr. Exp. Sta. Memoir 220, 1939; N. Y. School Agr., *Farm Economist*, October, 1938, pp. 2656–8; Ky. Agr. Exp. Sta. Bul. 302, 1930; Mass. Agr. Exp. Sta. Bul. 250, 1929, Bul. 282, 1932; R. I. Agr. Exp. Sta. Bul. 265, 1938; U. S. Dept. Agr. Tech. Bul. 115, 1929; L. E. Cron, "An Application of Analysis of Co-Variance to Price-Quality Relationships of Eggs," *J. Farm Econ.*, Vol. 22, May, 1940, pp. 440–5.

Ways of Studying Consumers' Response to Price

Two approaches are possible in studying consumers' response to price: (1) asking consumers what they would do under certain price conditions and what their attitude is to existing and potential prices; and (2) studying behavior in actual market purchases.

In one study, for example, families were asked how a change of 2 cents per quart in the price of fluid milk and how a change of 4 cents per pound in the price of butter would affect their purchases: [2]

> Thirty percent of all families surveyed stated they would use additional milk with a 2-cent decrease in price per quart. (The established price was then 9 cents per quart.) If only those families who anticipated using more milk at decreased prices are considered, the reported increase in consumption by economic groups would have been as follows: Low 78.4 percent, intermediate 61.0 percent, and high 51.7 percent. Applied over the entire sample the anticipated increases according to economic groups amounted to: Low 14.3 percent, intermediate 11.1 percent, high 6.2 percent, and weighted average 10.2 percent.
>
> Only 7.6 percent of the families in the sample reported that they would use less milk (averaging 39.2 percent less) if a 2-cent increase in price were effected. By reason of the limited number so reporting, total consumption on this basis would have been reduced but 2.1 percent.
>
> The results indicate that butter consumption would have increased 15.8 percent with a 4-cent decrease in the price per pound.

Ross, in a study of milk consumption in New York City, did find that a 2-cent increase in the price of milk was accompanied by an appreciable decrease in consumption.[3] It is not known, however, how closely this reported change came to approximating what consumers in the A.A.A. study, for example, stated they would do.

In a study of potato preferences, families were asked if they varied the quantity consumed with change in price. Among low-income families replying, 35 per cent said, "Yes." For the medium- and high-income groups the proportions were 23 and 7 per cent, respectively.[4] Families in certain localities in Canada were asked to check various reasons why a designated Cheddar cheese was not used in larger quantities. Out of 1,063 families not on relief and having incomes under $1,000, only 6.8 per cent gave "too expensive" as a reason. For the higher-income groups the proportion was less.[5] Although it seems highly probable that as income rises the price of any food would become a less important factor in determining the quantity consumed, it also seems highly probable that price affects the consumption of more families than these studies indicate.

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[2] U. S. Dept. Agr., A.A.A. Division of Marketing and Marketing Agreements, *A Survey of Milk Marketing in Milwaukee,* Marketing Information Series DM-1, 1937, pp. 27–8.

[3] H. A. Ross, *Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York,* U. S. Dept. Agr. Tech. Bul. 73, 1928, p. 47. For further discussion of milk see Chapter 29.

Consumers in one study were asked, "At what price per dozen are fresh eggs an economical food?"[6] It does not seem likely that answers to such a question could be very valuable. In the first place, price of eggs detached from quantity purchased has little meaning. Consumers in their purchasing are influenced by prices of substitutes. Furthermore, a sense of pride is likely to cause some consumers in answering to overstate rather than understate an "acceptable" price. Relative difference among various income groups would have some meaning, of course.

In commenting on the difficulty of studying probable response to price change by asking consumers what they would do, Schultz states:[7]

> A good many [consumers] . . . will not be able to tell how much of a given commodity they would buy under given price conditions. And if they were compelled or induced to give an answer, it would not be a safe guide to their actual conduct. Most people simply *do not know* how their consumption of a given commodity will be affected if prices were to move much above or below their accustomed range, and even within the accustomed range, there may be a great deal of uncertainty. They must *experience* a given set of price relations in its proper institutional setting in order to make up their minds as to the quantities they will purchase. In short, the way to deduce the demand . . . for a commodity is to observe the behavior of consumers in masses in the market. . . .

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[4] E. H. Rinear, *Consumer Preferences for Potatoes,* N. H. Agr. Exp. Sta. Cir. 37, 1931, p. 9. See also Wis. Agr. Exp. Sta. Res. Bul. 124, 1935.

[5] G. P. Boucher and W. C. Hopper, *An Economic Study of Cheese Consumption in Certain Urban and Rural Districts in Canada,* Dom. Can., Dept. Agr. Pub. 658, Tech. Bul. 22, 1939, p. 25. Much the same response by income groups is shown among a group of consumers in Rhode Island. R. I. Agr. Exp. Sta. Bul. 240, p. 25.

[6] R. I. Agr. Exp. Sta. Bul. 240, 1933, p. 26. Consumers were also asked, "What factors in eggs are worth an extra price to you?" They were asked to state how much extra these things were worth. It would seem that data from retail stores would provide a better means of investigating such facts.

[7] Henry Schultz, *The Theory and Measurement of Demand,* 1938, p. 10.

Relationships among Foods

The relationship of foods to one another has an important bearing on the effect of a price change on quantity purchased. Foods may be put into three categories: (1) competitive or competing, (2) complementary or completing, and (3) unrelated.

Competing Foods

Foods are competitive if they are substitutes for each other in that the more you have of one the less you want of the other. Suppose A and B are closely competing and the price of A falls. The quantity of A purchased tends to increase, and this tends to bring about a decrease in the purchase of B, provided, of course, that the price of B remains unchanged. But, if the demand for B decreases because the price of A has fallen, there will be a tendency for B's price to fall also. Perfect substitutes can be interchanged for each other in a constant ratio. There are, however, few if any perfect substitutes among foods, although there are many which compete very closely. Beef and pork obviously are competing products. In such cases a price rise that causes the consumption of one to fall off is likely to increase the demand for the other, the result being to exert pressure on its price to rise also; and conversely a fall in the price of one is likely to be accompanied by a fall in the price of the other. Thus the prices of competing products move in the same direction, whereas the quantity purchased of one increases while that of the other declines.

It should be recognized also that the degree of competition between foods varies greatly. The shift which occurs in the consumption of one food because of a change in the price of a substitute food is described as its elasticity of substitution. The elasticity of substitution is high if a small change in the price of its substitute causes a large change in the quantity of it which is demanded. Conversely, if a considerable change in price of other products affects its demand little, the elasticity of substitution of a product is said to be low.

Price changes have been analyzed for several competing products. Schultz[8] studied the interrelationship of the demand for beef, pork, and mutton. He found that beef competes with mutton and with pork, but the data on the relation of mutton to pork gave inconclusive results.

An analysis made by Kozlik,[9] of various fats, reveals that "There is almost no replacement between lard and butter with respect to price, but there is a high replacement between lard and lard substitutes." He also found that changes in margarine consumption are related to the changes in the price of butter.

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[8] *Op. cit.*, p. 647.

[9] A. Kozlik, *Research Handbook for Interrelated Demand*, unpublished manuscript, 1942.

The competitive relationships between fresh and evaporated milk have received a good deal of attention. In 1923 evaporated milk made up 8 per cent of the total consumption of fresh and evaporated milk; in 1938 the share of evaporated milk had risen to 12 per cent. Increased knowledge of the nutritive value and of ways of using evaporated milk, plus its inclusion among the surplus foods distributed to relief families and included for purchase with free stamps under the Food-Stamp Plan, has probably been an important factor. In addition, there has been a widening price margin between fluid and evaporated milk.[10] Leland, however, believes that there is comparatively little precise information at hand with which to verify or challenge the importance of the increased margin in changing consumption. He points out that some studies conclude that the use of canned milk brings an increase in total milk consumption, with evaporated milk in many cases replacing cream. Although some families use it in place of fresh milk, certainly it rarely is looked upon as a satisfactory substitute for all uses. The substitution occurs for cooking, for coffee, and for babies.[11] In a survey in Vermont 55 per cent of the housewives gave "lower cost" as a reason for using canned milk. Almost an equal number reported that they "like it better." [12]

Table 45. Changes in Fresh and Evaporated Milk

Year	Proportion of "Fluid" Milk Consumed as Evaporated Milk	Price per "Quart" of Milk		Price Difference per "Quart"	Price Index of Evaporated Milk (Price Fresh Milk = 100)
		Fresh	Evaporated		
1923	7.6	13.9	12.8	1.1	92
1929	8.6	14.4	11.5	2.9	80
1936	11.7	12.5	8.9	3.6	72

Complementary Foods

If two foods are complementary their consumption increases and decreases together. In which case a fall in the price of one tends to increase its taken quantity and, because the products are used together, this change tends to increase the demand for the other product and hence to raise its price. Thus because the two quantities tend to move together the prices of the two tend, in changing conditions, to move in opposite directions.[13] Meat and potatoes are undoubtedly completing products to some extent, although meat is used with many other foods and so are potatoes. Schultz assumed that sugar was a completing food to tea and coffee and investigated the consumption of these products in Canada. Because of incomplete data, evidence to substantiate his thesis was not secured.[14]

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[10] *Consumers' Guide,* June 6 and 20, 1938, pp. 14 and 18.

[11] L. Spencer, "Competition between Fresh and Canned Milk," *Proceedings of the International Association of Milk Dealers,* Vol. 32, Dec. 5, 1939.

[12] Vt. Agr. Exp. Sta., Bul. 433, 1938, p. 26. Pride may have reduced the number of persons that gave "lower cost" as a reason.

Reports of cream consumption in New York City show a sharp rise occurring during the peak of the strawberry season. In this case, however, price remains unaffected because it is fixed by agreement and the increased demand comes at a time when the supply is unusually large. Furthermore, the supply of cream going to butter can readily be reduced.

Because of the relatively large quantity of milk used with dry cereals, a high price of milk, such as occurs in some cities, may restrict to a considerable extent the consumption of ready-to-eat cereals. Advertisers of such products might find it to their advantage to shift some of their efforts from advertising to inquiring what might be done to make available milk at a lower price at least to low-income families.

Competing and completing foods must not be thought of as separate and distinct categories. Of products in general, Hicks writes:[15]

> Any particular good will have a little knot of other goods around it that are complementary with it; but its most probable relation with any other good taken at random will be one of (doubtless mild) substitutability. At least that is what one would expect to find.

Unrelated Foods

All consumption goods are related in that they contribute satisfaction and draw upon a pool of resources used by any one consuming group. It seems highly probable, however, that the quantity of bacon consumed is no more related to the price of apples than it is to the price of silk stockings or to the price of gasoline.

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[13] H. Schultz, *op. cit.*, proposes a rough test of the relationship of the fluctuations of price and quantity ratios to indicate whether foods are completing or competing. This test has been used by S. Hoos, "An Investigation on Complementary Relations between Fresh Fruits," *J. Farm. Econ.*, May, 1941, pp. 421–33. Its use by Hoos has been criticized by A. Kozlik, *J. Farm Econ.*, August, 1941, pp. 654–6, who points out "(1) the inadequacy of the rough test for interrelated demand by Henry Schultz, and (2) the insignificance of the results obtained by Hoos."

[14] *Op. cit.*, pp. 585–9.

[15] J. R. Hicks, *Value and Capital,* 1939, pp. 47–8.

Price Elasticity of Demand

Price elasticity measures the relationship of the relative change in the quantity of a product that people are willing to purchase to the relative change in the price of it, assuming preferences, incomes, and prices of other products remaining the same.

Types of Price Elasticity

Three types of price elasticity are important.

(*a*) An elastic demand, one in which a small fall in price brings a relatively large increase in quantity purchased, and conversely a price rise causes quantity purchased to fall considerably. With such a demand a fall in price increases the total amount spent for the product and hence the gross income of sellers, and a rise in price decreases the amount spent and hence the gross income of sellers.

(*b*) An inelastic demand, one in which a price fall brings relatively small increase in quantity purchased, and a price rise brings a relatively small decrease. When demand is inelastic, a rise in price increases expenditures for the product and hence the gross income of sellers, and a fall in price has the reverse effect. The more that is sold the smaller the gross revenue.

(*c*) Between these two is that demand having unit elasticity, for which a change in price is accompanied by an inverse but proportionate change in quantity purchased, so that at the various prices the amount spent for the product by consumers and the amount received by the sellers remain unchanged.

With these three types an increase in price is accompanied in every case by a decline in the quantity of the product taken; hence the elasticity is described as negative.

It is possible but very unusual for an increase in price to bring an increase in the quantity purchased by some groups, even if money income and other prices were to remain unchanged. In this event, the price elasticity for the group would be positive. For example, in some countries "a rise in the price of bread may so impoverish the poorer classes that they cannot afford more 'superior' goods, such as meat, and must eat more bread."[16] After paying for the customary amount of bread, which in spite of the rise in its price may still seem cheap in contrast with other foods, the people, in order to satisfy their hunger, have only enough money to buy additional bread in place of the more expensive foods formerly purchased. An increase in quantity purchased, with rise in price, occurs only if the expenditures for the food take a large part of total expenditure and if substitutes are relatively expensive. It seems highly improbable that any foods fall in this class for any families in the United States. Here even poor families consume a considerable variety of foods. No food is so important that families would be impoverished by an increase in its price to the extent of having to buy more of it in place of substitutes.

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[16] H. Schultz, *The Theory and Measurement of Demand,* p. 51.

Factors Influencing Price Elasticity

Response to price change differs among income groups. There seems a considerable possibility that the higher the income the more inelastic is the demand for any one food customarily consumed, and conversely the lower the income the greater the effect of change in price on the quantity consumed. The decreasing utility of any one dollar as income gets larger in itself would lead one to suspect that the higher the income the less one is willing to change one's food habits because prices have changed.

It has already been pointed out that consumers in a number of studies have been asked whether change in price would affect their consumption of various products. Responses indicate that the lower the income the greater the likelihood that a change in price will effect a change in quantity consumed.

One study has been noted in which data were secured on the consumption of eggs at two different seasons.

> The rate of egg consumption calculated on the basis of replies given in April, when eggs were relatively cheap, was 28 per cent higher than the rate indicated by the survey made the first week in December, when egg prices were high. In the higher income groups, the rate of consumption, based on the spring survey, was 11 per cent higher than the consumption indicated in the December survey; in the middle income groups, 26 per cent higher, and in the poor income groups, 53 per cent higher. These figures indicate that when eggs are high in price, consumption in families with small incomes falls off much more than in families with large incomes.[17]

Allen and Bowley in their study, *Family Expenditures,* however, express the opinion that "demand tends to become more elastic as the income level rises."[18] They base this opinion on the fact that high-income families are accustomed to use a great variety of foods; so "substitution becomes more easy for most goods as income rises." This difference, with level of income, may be more important among European than American families. The American diet at all income levels contains many foods, the number is, however, much greater at the high- than at the low-income levels.

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[17] F. F. Lininger and T. B. Charles, *A Study of Egg and Poultry Consumption,* Pa. Agr. Exp. Sta. Bul. 222, 1928, p. 4. Only white families were included here; from these 257 records were secured. Among Negro families, consumption, as reported, varied among the seasons by only 10 per cent and did not appear to be affected by income. Records, however, were secured from only 69 families.

[18] *Op. cit.,* p. 125.

Price elasticity is affected a great deal by the extent to which a food is looked upon as a necessity having few close substitutes. Individual habit and group custom are important factors. The more fully the consumption is fixed in habit the less effect does price change have on quantity purchased. It has generally been assumed that wheat flour and potatoes are two such products in the American diet. Potato prices, for example, are subject to great shifts from year to year, with change in the number of bushels to be marketed. A large increase in price is necessary in order to bring even a relatively small decrease in quantity purchased and a large fall in price is necessary in order to induce people to increase the quantity which they consume.

The price elasticity of any one food differs according to the use to which a food is put. Many foods have several uses. It is highly probable that price affects the quantity of milk purchased for the consumption of young children much less than it affects the amount of milk drunk by adults.

As price rises, the less important uses are dropped, and conversely as the price falls consumption is extended to the less important uses.

Price elasticity is affected by the relative price of a food. A food customarily having a low price is likely to have a relatively inelastic demand. A low price tends to bring the consumption of many consumers to or close to satiety, so that a lowering of a price leads them to purchase little more of the product. Furthermore, the raising of a price which is relatively low will increase but little the additional expenditure per unit necessary to continue former consumption. The larger the quantity of a product consumed per week, month, or year the greater is the additional expenditure necessary to continue consumption as usual should the price rise. If customary consumption is large, a rise of 1 cent per pound in a product priced at 5 cents is likely to be noticed more than a similar increase in the price of a product whose customary consumption is small. A high price tends to keep one alert to the price of substitutes. The greater the price difference between a product and what is looked upon as an acceptable substitute the more inelastic is the demand. The higher the price of a product rises the closer it comes to the price of substitute products and the more will consumers tend to shift to them.

Cabbage is one of the lowest-price vegetables in the American market. One study reports:[19]

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[19] R. L. Spangler, *Marketing of Commercial Cabbage,* U. S. Dept. Agr. Tech. Bul. 646, 1938, p. 104.

> The demand for cabbage is relatively inelastic and shortages in supply are likely to result in more than a proportionate increase in price, whereas a crop surplus usually causes more than a proportionate drop in price. Prices, therefore, fluctuate widely from year to year and even during a crop-marketing season.

At a very high price, however, demand may also be inelastic if, because of the high price, the consumption is largely confined to the very rich, whose income is so high that preference alone is their guide—favored foods are selected without reference to price. The highest grade of fresh eggs in New York City may have a very inelastic demand for this reason, whereas demand for the medium grade may be quite elastic. Apart from the very top qualities, there is little food purchased even mainly by the wealthy. The presence in the market of families with a wide range of incomes tends to increase the price elasticity of demand for products purchased by many groups.

Up to this point we have thought chiefly in terms of competing foods. Complementary or joint demand tends to reduce price elasticity. The more one product is desired because another product is to be used, the less is its consumption affected by its own price. Its consumption, in fact, may be more closely tied up with the price of the product with which it is used. In speculating on factors that affect the inelasticity of the demand for lemons, Wellman and Braun write:[20]

> Their cost is very often only a small part of the cost of the product in which they are used. Lemonade and lemon ice are about the only food products in which lemons are the principal ingredient and even in these foods the cost of the fruit makes up only a part of the total cost. In the preparation of many other foods lemons constitute an important (ingredient) but relatively trifling item in the cost. These foods are seldom prepared without lemons even when lemon prices are high, but on the other hand, no larger quantity is used when prices are low.

After allowing for a change in preference because of weather and season, market data showed a relatively inelastic demand.

Methods of Measuring Price Elasticity

In measuring price elasticity, prices and quantities taken at each price may be plotted on logarithmic scales, which measure proportionate rather than absolute changes. The plotted points are then connected. To the extent that the curve thus secured is straight, price elasticity throughout its range is the same and can be measured by the angle which the curve makes

[20] Calif. Agr. Exp. Sta. Bul. 460, 1938, pp. 20–1.

with the axis on which the prices are plotted. In this way a measure is secured of what is described as arc elasticity. A curve with elasticity of unity has an angle to the price axis of 45 degrees; an inelastic demand has an angle of less than 45 degrees; and an elastic demand, an angle of more than 45 degrees.

Arc elasticity between two points can also be measured by dividing the proportionate change in quantities at two points by the proportionate change in prices.[21]

Price elasticity can also be measured at any given point and is described as point elasticity. This may be done geometrically from data plotted on arithmetic scales.[22]

Since measures of elasticity thus secured are practically all negative, the minus sign is often omitted. By convention a demand curve with an elasticity greater than 1 is classed as elastic; 1 less than 1, as inelastic. Unit elasticity has an elasticity of 1.

Measurement of Price Elasticity

To measure price elasticity of a food one must be able to determine the quantities of it that people in a given market are willing to buy at various prices, with preferences, money income, and the prices of other products remaining unchanged. Records of sales in a given market over a period of time constitute basic data for the investigator. The use of

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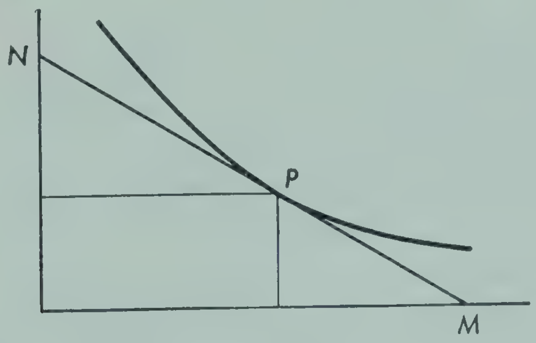
[21] The following formula is used in measuring the average elasticity between p_0 and p_1:

$$E = \frac{\dfrac{q_0 - q_1}{q_0 + q_1}}{\dfrac{p_0 - p_1}{p_0 + p_1}}$$

(q_0 and p_0 are the quantity and price at one point, and q_1 and p_1 those at another.)

[22] For example, price elasticity at point P on the diagram below might be determined as follows:



$$E = \frac{PM}{PN}$$

these records in securing a measure of price elasticity involves many difficulties; for changes affecting the quantity purchased, other than the change in the price of the commodity, inevitably occur. Important changes include the following:

1. Population purchasing in the market.
2. General price level.
3. Money income.
4. Prices of substitutes.
5. Scales of preference.

If seasonal data are being used, changes in preference may be very important. Even with annual data, long-time changes in preferences may create difficulties for the investigator.

The effect of population change largely can be eliminated by using per capita figures; and that of price level may be minimized by dividing the market price by an index of price level and thus securing a measure of the "real" price of the food being studied. General business conditions or national income data can be used to allow for the effect of income change.

The effect of changes in the price of closely competing substitutes is especially important and very difficult to make allowance for. It seems desirable that the elasticity of demand for a food such as meat be studied rather than the price elasticity of separate types of meat, such as beef and pork singly. For these items, studies should be made of elasticity of substitution.[23]

Many reported measures of price elasticity have been derived from crude estimates based on price-quantity changes, without taking into account many of the changes noted above, and for the most part prices in the wholesale market are used. They are highly useful in providing a measure of the effect of price-quantity changes on farm incomes. The effect of changing quantity on prices paid by consumers and on the total amount spent by them for the product can be determined only through a study of retail transactions. Since retail margins are relatively constant, retail prices in affecting the sale of a given quantity of a product change proportionately less than wholesale prices. For example, if the price of eggs in the wholesale market moves from 20 to 25 cents per dozen, a 25 per cent increase in price has occurred. Suppose this change in wholesale price is accompanied by a 5-cent increase in price per dozen in retail stores. If this moves the price from 24 to 29 cents, a 20.8 per cent increase in price has occurred.

Among the extensive studies of price elasticity is that by Schultz. Using wholesale prices, he determined for the United States the price elasticities for three commodities important in the American dietary and having no close substitutes.[24]

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[23] For systematic discussion of methods see A. Kozlik, *Research Handbook for Interrelated Demand,* unpublished manuscript, 1942.

Commodity	*Years*	*Price Elasticity*
Wheat	1921–1934	0.21
Potatoes	1915–1929 *	0.31
Sugar	1915–1929 *	0.30

* For the period 1915–1929, data for the years 1917–1921 were not included.

The price elasticity of any food is by no means constant from year to year or from one decade to another. An increasing real income, for example, seems likely to decrease the price elasticity of many foods, whereas a falling real income should have the opposite effect. Changing preferences are important. For example, there has been an increased tendency for nutritionists to attach great importance to the consumption of a given quantity of milk. The emphasis would tend to make demand for it more inelastic. Education concerning the merits of canned milk should increase the price elasticity of fresh milk. The fortification of margarine with vitamins A and D should increase the price elasticity of butter because the change will increase people's willingness to substitute margarine for it as butter prices rise.

Short- and Long-Run Response to Price Change[25]

The consumer's response during the first week or month to a price change of a single food, all other prices remaining the same, may be quite different from the response registered one, two, or three years later if the changed price differential still prevails. Working[26] points out:

> The increase in the rate of consumption which results in a given year from a price 50 per cent below normal must not be assumed to be the same as the increase in the rate of consumption which would result if prices were maintained at a similarly low level for a period of ten years.

In price rise, for example, several factors may affect the long-run in contrast with the short-run adjustment, for example: (1) unawareness at the outset that price rise has occurred or unawareness of the cumulative effect from repeated purchases; (2) ignorance of substitutes; and (3) well-established dietary habits. The outlay for a food for any one purchase may be relatively small, so that for a short time a 10 or even a 20 per cent increase in its price may seem unimportant, exerting little pressure to change. As time goes on, however, the additional cost becomes more apparent, and pressure is exerted on consumers to seek information on possible substitutes and to weigh their merits.

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[24] H. Schultz, *The Theory and Measurement of Demand,* 1938, pp. 229 and 400.

[25] For discussion see R. L. Mighell and R. H. Allen, "Demand Schedules—Normal and Instantaneous," *J. Farm Econ.,* Vol. 21, August, 1939, pp. 555–69.

[26] E. J. Working, *J. Farm Econ.,* Vol. 14, April, 1932, pp. 241–2.

Additional information will not be necessary if the substitutes are well established in the diet, as is beef for pork among most families in the United States. The difference in short-run and long-run response to price change is not likely to be so marked as if the price of meat in general increased and the main substitutes available were nuts, legumes, and cheese. Once knowledge of substitutes is acquired, new scales of preference tend to emerge and new habits are formed. The process of adjustment may be a slow one if change of habit involves adjustment to rather different flavors and textures as well as to changes in cooking methods.

A lowering of prices may have an important long-run effect if it invites experimentation in the use of food by families who previously considered it definitely outside their reach. At first the consumption may be very small, the food being used merely as a novelty, but in time a liking for it may be acquired. Avocados ten years ago were in the luxury class and their use almost entirely confined to high-income families. Through a combination of lower prices, imitation of the few who early discovered their merits (both sensory and social), experimentation, and a little systematic education, they gradually have come to be used by many families. Because of their being a new food to many people, with unusual flavor and texture, the effect of lowered price could only make itself felt over a considerable period of time.

Since milk prices are set by milk boards, the effect of the established price on consumption has been much discussed. The immediate response of consumers in a given city to an increase in price may be a purchase of much the same amount of milk as formerly. Gradually there may be set in motion a shift to such substitutes as evaporated milk. Mortenson points out:[27]

> There is real need for such facts as will provide a general body of knowledge on consumers preferences, tastes, and desires, and the manner in which these are or may be influenced, as well as the method by which and the extent to which they are now being changed. Demand studies to date, for the most part, have not been taken with a high degree of seriousness by those who determine the price and market policies. If agricultural economists and fluid-milk producers and distributors continue to underestimate the importance of long-time price relationships in consumption, it may easily happen that dis-

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[27] W. P. Mortenson, *Milk Distribution as a Public Utility*, 1940, pp. 207–8.

tributors will discover only too late that the sales which they anticipated regaining are in the permanent hands of those who are supplying not fresh fluid milk but instead other products, especially evaporated milk.

A good deal of speculation on the difference between short-run and long-run response to price change has occurred. Empirical data are very scanty. The long-run effect of price changes is obscured by many other changes.

Price Elasticity in Relation to Policy

One need not search far to find examples of policy issues for which price elasticity is an important factor. For example, meat packers in recent years have been experimenting with grinding hams into luncheon meat which sells at a lower price per pound than hams of similar quality which are not ground. The ground meat is expected to sell to moderate-to-low-income families, which are assumed to have a relatively elastic demand, so that a small reduction in price will cause a relatively large increase in quantity purchased. At the same time the quantity of hams to be sold unground has been reduced, so that those remaining can be sold at relatively high prices to moderate-to-high-income families, whose demand for ham is considered to be relatively inelastic.

Agricultural economists have attempted to explore the possibility of increasing farm incomes by raising the price of foods to moderate- and high-income families, whose price elasticity is low, and lowering the price to low-income families, whose price elasticity is thought to be somewhat higher. Some proposals recognize three groups of consumers: (*a*) those who can afford all they want of top-quality products and, in addition, feel it no hardship to pay for retailing services of credit and delivery; (*b*) those who have the income to buy all the food they need, of at least moderate quality, if they can get it without having to pay for delivery and credit and other services that they are willing to perform for themselves; and (*c*) those whose incomes are so small that they cannot buy the food they need at a price that covers necessary costs of production and handling. The third group is held by some to stand in need of subsidy of some kind. The second group might be helped by eliminating restrictions that prevent price competition, such as resale price-maintenance laws and a single price, as for milk, irrespective of retailing services desired.

Milk-marketing boards would like to know more of the price elasticity of various income groups. If this were known, the advisability of establishing ways and means of dividing the milk market by income groups would be less of a guess than it is at the present time. Norton urges that the following be provided: (1) high-priced, high-quality milk to tap the high-income groups; (2) lower prices and somewhat lower quality milk delivered to consumers to tap the middle-class groups, who will pay for the delivery service; and (3) low-priced milk at stores to tap the low-income group, unwilling to pay for service.[28]

Many policies in the A.A.A. program involve matters of price elasticity. How much will the expenditure of $100,000 for butter by the Surplus Marketing Administration affect the price of butter? Will the price-raising effect be greatest if top-grade butter, mostly consumed by families with relatively high incomes, is purchased for distribution to relief families? What effect will a program restricting acreage of a crop have on gross farm income, and what effect will it have on the consumption of families at different income levels?

These are some of the questions that are being asked. Data on which to base intelligent answers are meager and crude.[29] Policies are evolved largely from hunches. Refinement of analytical techniques may be expected to increase knowledge of price elasticity. It seems highly desirable in the interest of welfare that consumers' response to retail prices by income level receive more attention and that nutritionists increase their efforts to acquaint people with acceptable substitutes so that consumer ignorance becomes a less important factor in making for inelastic demand.

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[28] L. J. Norton, "Differentiation in Marketing Farm Products," *J. Farm Econ.*, Vol. 21, August, 1939, p. 588.

[29] For discussion of these issues see F. V. Waugh, "Market Prorates and Social Welfare," *J. Farm Econ.*, Vol. 20, May, 1938, pp. 403–16. See also G. Shepherd, "Price Discrimination for Agricultural Products," *J. Farm Econ.*, Vol. 20, November, 1938, pp. 796–806. For extended criticism of Waugh's proposals, see G. J. Stigler, "Social Welfare and Differential Prices," *J. Farm Econ.*, Vol. 20, August, 1938, pp. 573–86; Adolph Kozlik, "Shape of Total Revenue Curves," *J. Farm Econ.*, November, 1941, pp. 843–54.

14

Research in Family Food Consumption[1]

INFORMATION on food consumption by family groups serves many purposes. Concerning it, Stiebeling and Phipard, for example, point out:[2]

> Quantitative data interpreted in the light of present knowledge of food values and nutritional needs are basic to programs designed to improve general welfare. Such facts are needed by public and private agencies charged with the formulation of educational programs and the development of social policy. Such data are also indispensable in determining food to be included and the weight to be assigned to each in pricing of food budgets and in the construction of food-cost indexes. And because they serve to define markets and to indicate the effect on consumption of changes in economic well-being, figures on food consumption are of value to all concerned with the planning of agricultural production, and to all engaged in the processing or distribution of food.

Several aspects of research in food consumption have already been considered, for example, imputing value to family-furnished food and some problems in studying food preferences and consumers' response to price change. This chapter will first trace briefly the history of studies of family food consumption; then methods of collecting data and their analysis will be considered. Finally food-price and cost-of-living indices will be briefly discussed.

Family-Scale-of-Living Studies

The study of food consumption has been a part of most family-living studies. By the middle of the 19th century serious attention was being given to the collection and analysis of family-consumption data. Since then hundreds of studies have been made mostly in although not confined to Western countries.[3] Eden, concerned over the wretched condition of the poor, was stimulated to make a study in England in 1797. This incentive has continued to be important, but studies by no means have been confined to low-income groups.

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[1] Those not interested in research methods may wish to omit this chapter.

[2] "Diets of Families of Employed Wage-Earners and Clerical Workers in City," U. S. Dept. Agr. Cir. 507, 1939, p. 2.

[3] See F. M. Williams and C. C. Zimmerman, *Studies of Family Living in the United States and Other Countries,* U. S. Dept. Agr. Misc. Pub. 223, 1935.

In the United States an expenditure study was undertaken about 1875 by Wright, who at that time secured data from 397 families in Massachusetts. Labor-union demands for a "living" wage led to many studies of wage-earning groups. In the nineties, rising prices stimulated an interest in the "cost of living," and in 1901 a study was made to provide suitable weights for a food-cost index. The early years of the 20th century were characterized by an intense interest in social conditions by private agencies. One outcome was a study by Chapin, in 1907, of low-income families in New York City.

An extensive study was made by the U. S. Bureau of Labor Statistics in 1918–1919, following and during a period of rising prices. This provided weights for a revised cost-of-food index and for the establishment of a cost-of-living index. During the 1920's several studies were made of professional families. Here, too, increased prices and a desire for a salary adjustment were important. The break in agricultural prices in 1920 was responsible in large measure for increased attention being given to farm-family living. For the most part studies of it have been made by state experiment stations, many in cooperation with the U. S. Bureaus of Agricultural Economics and Home Economics. Many studies have been made by relief and charity organizations for the purpose of setting up or evaluating relief budgets. A notable example of these is the study by Houghteling, *Incomes and Standards of Living of Unskilled Wage-Earners in Chicago.* Hawley, writing in 1931, estimates that consumption habits of 75,000 families in the United States had been studied, 88 per cent belonging to the wage-earning and 10 per cent to the farm group.[4]

The findings of two extensive studies have recently been published. One carried on by the U. S. Bureau of Labor Statistics was confined to the families of wage-earners and lower-salaried clerical workers living in principal cities. Data from this study provide a basis for another revision of the U. S. Bureau of Labor Statistics cost-of-living index. This bureau has been responsible for the Consumer Purchases Study in urban communities, whereas the U. S. Bureau of Home Economics has carried on the section of the study that includes small cities, villages, and farming communities. In both these studies a large number of families reports incomes and expenditures, and a smaller group provides detailed reports on food.

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[4] *Economics of Food Consumption,* 1932, p. 18.

Food and Dietary Studies

In food-consumption studies, three types of information commonly are sought: (1) type of food eaten; (2) the money value of food as a whole or of separate foods; and (3) the physical quantity consumed of all or selected foods. An excellent example of a study confined to the first type is *The People's Food,* by Crawford, presenting the food habits of English families.[5] In "standard"-, "scale"-, or "cost-of-living" studies, data are usually secured on expenditures for food. Securing data on all food consumed in terms of pounds, quarts, and other physical measures is probably the most difficult.

In 1886, after the first expenditure study, Atwater in Massachusetts made a dietary study. Later, as head of the Federal Office of Experiment Stations, he brought together records of food consumption of nearly 300 families.[6] These diets were analyzed as to protein, fat, carbohydrate, total energy, and cost. In 1914–1915, Sherman and Gillett[7] made an intensive study of 92 low-income families living in New York. An attempt was made to ascertain both the economy and adequacy of diets. The discovery of dietary-deficiency diseases was a further stimulus. Among the first studies investigating food habits and associated with dietary deficiency was that of South Carolina mill families by Goldberger, Wheeler, and Sydenstricker. Among these a high incidence of pellagra occurred. The depression brought further study of low-income families. In addition, W.P.A. funds made possible the nation-wide survey of dietaries by the U. S. Bureaus of Home Economics and Labor Statistics.

A few studies of food consumption have been combined with attempts to measure nutritional health. They will be considered in Chapter 17.

Many studies of the consumption of single foods or types of foods have been promoted by agricultural organizations, by manufacturers, and by marketing agencies in investigating the demand for their products and the effect, for example, of family income, type, and national origin. These studies give little or no indication of family well-being as affected by adequacy of diet.

Studies have been made also of diets of school children. At the present time an extensive cooperative project, carried on in several state agricultural experiment stations, is investigating the food consumption and nutritional health of college girls. The effectiveness of such studies would probably be enhanced were the diets and nutritional health of the individuals related to the food consumption of their families.

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[5] See also C. Van Syckle, *op. cit.*

[6] Mass. Bur. Stat. Lab., *Seventeenth Annual Report,* Part 3—"Food Consumption; Quantities, Cost and Nutrients of Food Materials," 1886, pp. 237–328.

[7] H. C. Sherman and L. H. Gillett, *The Adequacy and Economy of Some City Dietaries,* New York Association for Improving the Conditions of the Poor, Pub. 121, 1917.

Prior to the publication of the findings of the Consumer Purchases Study, knowledge of consumption by family groups was very limited. In many earlier studies too little attention was given to sampling. As a result, separate studies contributed little to general knowledge. Methods of securing data from families also have varied greatly in accuracy; and lack of uniform classification interferes with interstudy comparisons.

Methods Used in Collecting Food Consumption Data

Facts concerning food consumption of individual families must for the most part be secured directly from families themselves. Local stores at times may be used as a source, as in a study made by Goldberger, Wheeler, and Sydenstricker of South Carolina mill families.

> As the families purchased practically everything locally it was feasible to obtain from stores a record of each family's purchases during the period. To fill in the gaps agents were sent to the families at the end of this time to obtain from the housewife a list of what she had purchased from neighbors or obtained from her own cow, chickens, or garden and to learn who had consumed the food during the period.[8]

Methods used in securing data are of two general types: (1) inventory-record or (2) schedule. In the latter case, some member of the family, usually the housewife, with the assistance of an investigator fills in a form reporting details of past behavior. Questionnaires, sent by mail, have been found to have limited usefulness in studying food consumption.

The inventory-record method was used in securing food data in the recent studies of the U. S. Bureaus of Home Economics and of Labor Statistics:[9]

> The consumption of food during the week was determined by taking an inventory, by weight, of the food on hand at the beginning and the end of the period, and obtaining a day-to-day record of the food purchased or brought into the house from market, garden, cellar, or other source of supply. Household scales and other equipment necessary for weighing or measuring foods were supplied where needed.

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[8] E. Hawley, *op. cit.*, p. 267.

[9] U. S. Dept. Agr. Cir. 507, p. 4. The inventory method has been used in other studies, for example, by A. M. Moser, *Food Consumption and Use of Time for Food Work Among Farm Families in the South Carolina Piedmont.* S. C. Agr. Exp. Sta. Bul. 300, 1935, by F. M. Williams *et al.*, *Family Living in Knott County, Kentucky*, U. S. Dept. Agr. Tech. Bul. 576, 1937.

> A trained field agent assisted the housewife in taking accurate inventories and in keeping careful accounts of the weights of daily food purchases. The field worker visited the home daily, if necessary, to assure the completeness of the record. A complete description of each food was entered as a guide to estimating the nutritive value of the diet.

An investigator with a schedule may attempt to get from the housewife information on past consumption, similar to that sought when the inventory-record method is used, or may confine the questions to expenditures for food, to menus of the past day or two, or to frequency with which specified foods were served in the past week. The shorter and more recent the time period covered, the more accurate will be the information provided.

Accuracy depends to a large extent on the type of questions asked and the techniques developed by the investigator to help in making necessary estimates. Questions asked, it would seem, should relate to actual rather than "usual," "typical," or "average" behavior. The question, "How many quarts of milk did you buy last week?" is thus to be preferred to "What is the average quarts you buy per week?"

One study reports:[10]

> A preliminary "pilot" inquiry revealed the futility of asking what foodstuffs were "usually" bought; what foods and beverages were "usually" consumed at breakfast, dinner and tea. Only facts can form a reliable basis for a food inquiry, and factual information must be related to some specific time.

In comparing the relative merits of methods of collecting data, several factors need to be considered: (1) cost, (2) bias introduced into the sample, and (3) accuracy of the data provided. Obviously these depend in part on the type of information sought. In securing data on quantity of food consumed for a given period, the inventory-record method is much more expensive than the schedule method. So if it is used, data usually from only a limited number of families can be secured. Increased accuracy, of course, may more than compensate for the limitation of numbers.

Bias may be introduced into the data, whatever the method used, by the desire to create a good impression. The housewife may report what she tried to do or would like to do, what authorities have said she should do, or what the "better" people do. The form of question may help to increase honesty. Some checks are possible. In one case, data on butter and margarine consumption were secured from both stores and families. Consumption, as reported by these two groups, led the investigator to conclude that those reporting family consumption tended to overstate the quantity of butter and to understate the quantity of margarine. He felt that there might be some reluctance to report margarine because of a feeling that its use presents a lower level than the consumption of butter.[11] In another study, milk consumption, as reported by housewives, was checked with records of actual purchases by families, made throughout the entire year as indicated on the dealers' books. "A comparison of these data showed that purchases from the dealer had been overstated by the housewives, 11.5 per cent." [12]

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[10] W. Crawford and H. Broadley, *The People's Food,* p. 31.

Great care should be taken when checking the effect of an educational program on food habits to avoid having the replies reveal merely what the answerer has been urged to do, without indicating what the family does.

Monroe, in commenting on the inventory-record method, reports:

> Although families were asked to make no change in their customary ways of living, it is possible that some families may have maintained a somewhat higher than usual dietary level during the week in which they kept the food record and were subjected to visits from the food-record supervisor.[13]

It is important to consider and very difficult to determine the bias introduced into the data by the kind of effort necessary in providing information. A method necessitating considerable understanding or sustained effort may limit, for example, the records to the more intelligent or the more efficient or the more industrious housewives or to those with the most "spare time." With reference to detailed records in the recent study of food consumption of urban families, Stiebeling and Phipard state: [14]

> There was . . . a certain selective bias in the sample of families keeping records. In order to get an adequate number all families willing to cooperate had to be included.

Many reasons undoubtedly are responsible for failure of families to cooperate. In using the schedule method, less difficulty is encountered than with the inventory method in getting families to cooperate.

Attempts have also been made to measure the relative accuracy of the record and schedule methods. Woodhouse and Williams compared the relative accuracy of data secured by these methods. For a group of professional families it was found that "the schedule apparently can be made a satisfactory method of securing data on family expenditures and savings." For these families, the conclusion was reached that the schedules needed to be supplemented with food records if an analysis of the nutritional content of the diet is to be made.[15] The situation has been found to differ between farm and urban families:

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[11] Minn. Agr. Exp. Sta. Bul. 344, 1939, p. 6.

[12] Pa. Agr. Exp. Sta. Bul. 245, 1930, p. 8.

[13] U. S. Dept. Agr. Misc. Pub. 405, p. 363.

[14] U. S. Dept. Agr. Cir. 507, p. 3. The discrepancy in income between families reporting expenditures and those providing detailed food records is not consistent for the various sections of the country.

> The comparisons of account and schedule data from farm families do not show the schedule to be as satisfactory for this group as with the professional group. Differences between the two sets of figures on money expenditures as well as on the value of goods furnished by the farm, are great enough to leave the usefulness of the schedule method open to question. . . .[16]

In order to secure reliable data on farm-furnished food supervised records for at least part of the year, at different seasons seem to be necessary.

Monroe, following an analysis of food data secured in the Consumer Purchases Study, writes: [17]

> Errors in family reports of food consumption are likely to be omissions of entries and hence lead to understatement. The fact that quantities based on records (in conjunction with inventories) tend to exceed those based on check lists may, therefore, point to a more complete reporting of consumption on the former type of schedule than on the latter.

The check lists were considered quite satisfactory where group averages were used, but "not for the appraisal of variations in nutritive content of diets."

Apart from the quantity of food consumed, the schedule method has many advantages; for example, in securing facts on menus served, frequency with which selected foods are consumed, and recent expenditures for various foods.

Food Consumption of Individual Members of Families

In a very few cases has the consumption of individuals within groups been studied.[18] There are many people who feel that more facts are needed. In some instances an extreme position is taken: [19]

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[15] *Comparison of Schedule and Account Methods of Collecting Data on Family Living,* U. S. Dept. Agr. Tech. Bul. 386, 1933.

[16] *Ibid.,* p. 40.

[17] U. S. Dept. Agr. Misc. Pub. 405, p. 363.

[18] L. J. Roberts and M. Waite, "A Dietary Study Made in a Day Nursery by Individual Method," *J. H. Ec.,* Vol. 17, February, 1925, pp. 80–8.

[19] R. A. McCance and E. M. Widdowson, "Food Requirements and Food Intakes," *Brit. Med. J.,* 1937, Part 2, p. 312.

> It is difficult indeed to understand why the family method of investigation has had such a vogue . . . the question is whether it should ever be used again. If no other method of studying food intakes were available there would of course be no question, but it is difficult to see what advantages, if any, the family method has over the individual method. Any result obtained by the former technique can be obtained with greater accuracy and without assumptions by the latter. The individual method of study is not difficult, and we would urge those desirous of making nutritional investigations to give it a trial rather than to follow slavishly a method the results of which are so difficult to interpret.

Such criticisms are most pertinent when an attempt is being made to evaluate the adequacy of the diet.[20] In a few cases family studies have been included questions bearing on the consumption of individual members. Some insight into individual differences can be secured by questions as to whether children get whole milk or milk from which the cream has been taken for the coffee of the adults, the extent to which all members of the family drink the milk and eat the fresh vegetables served.

Ignorance Concerning Waste

Most food reaching the kitchen is eaten but some goes into the garbage pail or down the sink drain. Apart from inedible portions of various foods, concerning which a good deal is known, there is loss in cooking, waste on plates, and food which spoils or is thrown out because it has become stale. It is generally admitted that waste of fat is generally high, that valuable minerals from vegetables are lost because water in which they are cooked is not used, and that much vitamin content is destroyed by the cooking method employed. Investigation of cooking methods in use in the home is certainly in order.

Wide differences exist in estimates of edible waste. A study of food waste of 213 messes in a United States training camp, showed that 7 per cent of all protein, 9 per cent of all fat, and 6 per cent of all carbohydrate was "wasted." [21] Pearl, who was U. S. Food Administrator during World

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[20] Some investigators contend that "accurate individual weighed dietary studies can seldom be conducted without interfering in some way with free choice of foods by the subjects." See, for example, M. M. Kramer, H. F. Evers, M. G. Fletcher, and D. I. Gallemore, "Protein, Calcium and Phosphorus Intakes of College Women as Indicated by Nitrogen, Calcium and Phosphorus Outputs," *J. Nutrition,* Vol. 7, January, 1934, p. 89.

[21] J. P. Murlin, "Diet of the U. S. Army Soldier in the Training Camp," *J. Am. Med. Ass.,* Vol. 71, Sept. 21, 1918 pp. 950–1. Also J. R. Murlin and F. M. Hildebrandt, "Average Food Consumption in Training Camps in the U. S.," *J. Am. Physiol.,* Vol. 49, 1919, pp. 531–4. A study at Vassar College reported

War I, believes that this study is not typical of family consumption. He estimates the waste as follows: 5 per cent of the protein, 20 per cent of the carbohydrate, and at least 25 per cent of the fat.[22]

These estimates may have been responsible for what appear to be very arbitrary estimates used at times; for example, that 10 per cent of the total energy value of food purchased or coming into the home is wasted.[23] In using market data, Hawley made an arbitrary deduction of 15 per cent for waste.[24] Flat-percentage reductions are of no value in correcting food consumption data with reference to the quantity of protein, minerals, and vitamins consumed, since larger proportions of some nutrients than others are lost. The limited studies of household waste would indicate that these estimates are high. Atwater, in a study made in 1895 and 1896, attempted to get information of the amount of kitchen and table waste.[25] Waste was analyzed for protein, fat, and carbohydrate lost. Estimated waste in this and several other studies was summarized by Bryant. Protein waste ranged from 2 to 6 per cent, fat from 3 to 7 per cent, and carbohydrate from 2 to 5 per cent. Almost all families included were in the low-income group where the financial pressure to reduce waste was probably at a maximum.[26]

Hawley reports:[27] "In records collected in the Bureau of Home Economics it was found that about 2 percent of the purchased energy was wasted." She points out, however, that "This figure was obtained from a small study of the professional and farm group, and the records indicated, on the whole, a high degree of household efficiency."

Phillips and Howell, using the inventory method collected data on food consumption from 105 low-income families in New York City in 1917 and 1918. At the outset they planned to secure data on amount of waste. They report:[28]

waste equal to 10.6 per cent of all food. This was 6.6 per cent of the protein, 19.7 per cent of the carbohydrate, and 8.9 per cent of the fat. See A. L. MacLeod and M. A. Griggs, "Dietary Study at Vassar College," *J. H. Econ.*, Vol. 10, March, 1918, pp. 98 and 102.

[22] *The Nation's Food,* pp. 247–8.

[23] Miss. Agr. Exp. Sta. Bul. 245, 1927, p. 9.

[24] *Op. cit.,* p. 33.

[25] W. O. Atwater and C. D. Woods, *Dietary Studies in New York City, in 1895 and 1896,* U. S. Office Exp. Sta. Bul. 46, 1898.

[26] A. P. Bryant, "Some Results of Dietary Studies in the United States," *U. S. Dept. Agr. Yearbook,* 1898, p. 450. Only studies having at least ten families are reported here. A waste of 2.6 per cent was found in an English study reported by E. D. Cathcart and A. M. T. Murray, *A Dietary Survey in Terms of Actual Consumption,* Priv. Coun. Med. Res., Coun. Spec. Rep. Series 218, 1936.

[27] *Op. cit.,* pp. 31–2.

[28] V. Phillips and L. Howell, "Racial and Other Differences in Dietary Customs," *J. H. Econ.,* Vol. 12, September, 1920, p. 398. The same waste situation was found by G. G. Mudge, "Italian Dietary Adjustmtents," *J. H. Econ.,* Vol. 15, April, 1923, p. 182.

> Waste . . . occupied a very small place in most of these records. Crumbs, peelings, and scraps were frequently utilized in many of these families. Some women were indignant at the suggestion that there should be any waste to weigh.

Stiebeling and Phipard attempted to reduce ignorance concerning waste. They report:[29]

> The original plan provided . . . for the recording of the quantity of inedible refuse, plate scraps, food fed to animals, and other edible food discarded as waste, in order to get accurate data on food intake. Early returns from families indicated, however, that aside from inedible refuse such as bones, parings, or eggshells, very little food refuse or waste was being recorded. Although there were full instructions on the subject, it appears that the housewives either forgot or would not take the trouble to record or to save for the agent's inspection what seemed to them insignificant quantities of food. In view of this situation the attempt to secure information on food refuse and waste was abandoned. Hence the data presented on quantities of food refer to what was brought into the kitchen rather than physiological intake. In computing nutritive value, use was made of average figures on inedible refuse, but no deductions were made for waste of edible food.

In appraising the significance of data on food produced, purchased or taken into the home, ignorance as to extent of waste of various kinds must be kept in mind. Waste probably increases with income and for some foods is higher for farm than urban families.[30]

Family Type

Families differ greatly in size and composition; hence in some studies they have been grouped by type. This is done to discover the influence not only of family type but also of income; the latter, for example, is obscured if family members in various income levels, which are being compared, differ in number and age.

The following family types have been used in the Consumer Purchases Study.[31]

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[29] U. S. Dept. Agr. Cir. 507, p. 4.

[30] E. L. Kirkpatrick, in *Farmers' Standard of Living*, expresses the opinion that a larger-than-average waste allowance should be made in the food of farm families for such things as apples and potatoes because the farmer tends to sell the best grades and keep the poorer where the spoilage and other waste are higher. It is highly probable also that products may be "thrown out" more freely because they have "feed" value.

[31] For discussion see D. Monroe, "Analyzing Families by Composition Type with Respect to Consumption," *J. Am. Stat. Ass.*, Vol. 32, March, 1937, pp. 35–9.

1. Husband and wife, and no other persons.
2. Husband, wife, 1 child under 16, and no others.
3. Husband, wife, 2 children under 16, and no others.
4. Husband, wife, one person 16 or over, and one or no others.
5. Husband, wife, one child under 16, one person 16 or over, and one or two persons regardless of age.
6. Husband, wife, 3 or 4 children under 16, and no others.
7. Husband, wife, at least one child under 16, and 4 or 5 other persons regardless of age.

The value of any classification lies in the way it serves to isolate factors or influences. Family type 1 will be made up, to a large extent, of young couples who have not yet had children and of older couples whose children are grown, and age has an important bearing for consumption. When families of type 1 are classified by income do the young families cluster at the lower income levels and older families at the higher, or are they both represented in the same way at all levels? What is the effect of any clustering that occurs? There is certainly a question of whether a division at 16 years, in setting off family types, makes a suitable distinction in analyzing food. Children 12 to 16 years of age are closer to adults in their food consumption than to children seven years and under. The combination of these types as listed, which in many cases has been used in analyzing data, for example, of types 4 and 5, increases the heterogeneity of categories.

Types of Consumption Units and Scales

Consumption units have been described as measures to increase homogeneity among consuming units to be compared. A family of five, for example, may consist of two adults and three young children or of five adults, obviously two very different consuming units.

Two terms, consumption scales and consumption units, call for brief explanation. A consumption scale attempts to set forth the relative need of various individuals whose consumption is to be analyzed. A specified individual may be rated as one unit, more than one, or less than one, according to the base employed. Size of family is stated in terms of number of consumption units represented.

Consumption scales may be classified on the basis of what they presume to measure. Separate scales have been developed for food and clothing and all goods. The latter are of value in determining the general economic level of a family. If families differ much in composition from one family income level to another, a distortion occurs which may be eliminated at least in part if classification is in terms of economic level per consumption unit.

The development of a scale to measure the relative need of various members of a family is far from simple. Family members use a diverse assortment of goods, some of which are consumed individually, for example, food, clothing and recreation, and some jointly, for example, housing and automobile. Monroe [32] believes that "cost-consumption scales for the analysis of expenditures for items of family living consumed individually (as food and clothing) are more successful than those for analysis of housing and other goods consumed on a family basis."

The relative need of an individual for food has a scientific basis in part. For other products, for example, clothing and much "recreation," relative need is almost entirely based on customs and conventions. In such cases it is obvious that no single scale could be devised to measure the relative need of members of families for widely different levels of living, for level of living may affect differently the relative "need" of various members.

Food-Consumption Scales

Food scales are of two types: (1) those based on amount of nutrients, by age and activity; and (2) those measuring relative expense of food. The latter are described as a food expenditure or cost scales. It has at times been assumed that cost varies directly and proportionately with the need for nutrients, in which case an energy scale and a cost scale would be identical. With our present habits of consumption and prices children's diets are, however, usually more expensive per calorie, for example, than those of adults.[33]

In the latter part of the 19th century an analysis of dietaries was made by W. O. Atwater, using an adult-male-unit scale based on the relative energy requirement of persons of different age and sex.[34] The scale was later revised and has been widely used by social agencies in calculating food allowances for dependent families of different composition. Many other revisions were made in relative energy requirements—mostly in the direction of raising those of children.[35]

Prior to 1929, scales related to energy needs only. At that time Hawley published an energy scale and added an entirely new scale designed, she hoped, to measure the protein-mineral requirements of individuals and

[32] *Op. cit.*, p. 37.

[33] See F. M. Williams, "The Measurement of the Demand for Food," *J. Am. Stat. Ass.*, Vol. 24, 1929, p. 295.

[34] Mass. Bur. Stat. Lab., *Seventeenth Annual Report*, 1886, pp. 237–328.

[35] See U. S. Dept. Agr. Misc. Pub. 223, 1935, pp. 52–3.

family groups.[36] This energy scale has been used in a number of investigations of farm families in the United States, and the protein-mineral scale has also been used to a limited extent. It proved, however, unsatisfactory because it attempted to combine in one scale two needs, the relative importance of which was not uniform for the various age levels. The inadequacy of a scale based on energy alone, however, by this time was clearly apparent.

Scales set up by the U. S. Bureau of Home Economics are at present widely used in the United States and in many other countries as well. Scales are available for many nutrients, including several minerals and vitamins, and for people by age, sex, and activity. Furthermore, they are devised in terms of four types of diets: (1) the restricted emergency diet, (2) the adequate diet at minimum cost, (3) the adequate diet at moderate cost, and (4) the liberal diet.[37] These requirements are translated into scales which are used to measure the relative needs of specified family groups for energy, protein, calcium, phosphorus, iron, and Vitamins A, B, C and G.

Attempts have been made to devise an international food consumption scale. Burnet and Aykroyd [38] point out that

> No one scale can reflect the relationship between dietary requirements according to age and sex which exist in all parts of the world. For example, in most scales, the energy requirements of women are taken to be about 0.8 of those of an adult man; this may be roughly true of industrial communities, but it is less likely to represent reality in peasant communities where the housewives work side by side with their husbands in the fields.

Food-Expenditure Scales

Food-expenditure scales measure relative cost, by age, sex, and activity, of providing nutrients from foods of a type customarily consumed. Seven

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[36] E. Hawley, *Dietary Scales and Standards for Measuring a Family's Nutritive Needs,* U. S. Dept. Agr. Tech. Bul. 8, 1927.

[37] H. Stiebeling and M. Ward, *Diets at Four Levels of Nutritive Content and Cost,* U. S. Dept. Agr. Cir. 296. The three levels of adequate diet are much alike in energy value, total protein, calcium, phosphorus, and iron. The proportion of the protein derived from animal sources and the Vitamin A and Vitamin C content are higher in the liberal than in the moderate-cost adequate diet; and both are higher than in the minimum-cost adequate diet. The various adequate diets provide energy to an extent well above the median requirement of the group for which they are planned, whereas the restricted diet for emergency use is somewhat less generous.

[38] "Nutrition and Public Health," *Quart. Bul. Health Organization League Nations,* Vol. 4, June, 1935, p. 340.

Table 46. Scales for Measuring Relative Food Cost, by Age, Sex, and Activity

Activity, Sex, and Age	U. S. Public Health Service (Sydenstricker and King), 1916 *	Cornell University Experiment Station (Williams and Lockwood), 1925–1927 †	*Statistisches Reichsamt*, 1927–1928 ‡	U. S. Dept. Agr. Bur. Home Economics (Stiebeling and Ward) §			
				Restricted diet for emergency use, 1933	Adequate diet at minimum cost, 1933	Adequate diet at moderate cost, 1933	Liberal diet, 1933
Moderately active man	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Boys:							
Age in years:							
Less than 1	28	37	50	61	71	53	47
1	30	37	50	61	71	53	47
2	35	42	50	61	71	53	47
3	38	47	50	61	71	53	47
4	41	50	50	72	78	61	56
5	44	52	50	72	78	61	56
6	46	55	50	72	78	61	56
7	48	57	50	86	83	74	71
8	51	60	50	86	83	74	71
9	53	63	50	92	91	83	77
10	56	71	75	92	91	83	77
11	59	78	75	97	96	89	85
12	64	80	75	97	96	89	85
13	69	82	75	113	110	109	104
14	77	85	75	113	110	109	104
15	84	88	100	113	110	109	104
16	90	103	100	124	117	117	113
Very active man		125	100	128	122	118	117
Moderately active woman	86	78	90	97	96	89	85

* E. Sydenstricker and W. L. King, "The Measurement of Relative Economic Status of Families," *Quart. Pub. Am. Stat. Ass.*, Vol. 17, 1921, pp. 842–57.

† F. M. Williams and J. E. Lockwood, *An Economic Study of Food Consumed by Farm and Village Families in Central New York*, Cornell (N. Y.) Agr. Exp. Sta. Bul. 502, 1930.

‡ "Die Wichtigsten Ergebnisse der Amtlichen Erhebungen von Wirtschaftsrechnungen vom Jahre 1927–1928," *Wirtschaft über Statistische*, Vol. 20, No. 9, 1930, pp. 818–24. For summary of this report see U. S. Dept. Agr. Misc. Pub. 223, 1935.

§ H. K. Stiebeling and M. M. Ward, *Diets at Four Levels of Nutritive Content and Cost*, U. S. Dept. Agr. Cir. 296, 1933.

of these scales are shown in Table 46. Sydenstricker called his unit a "fammain"[39] and defined it as "a demand for food of a money value equal to that demanded by the average male in a given class when the expense for his food reaches a maximum." This scale was based on the Atwater scale of energy requirements and the actual food expenditures of 1,500 mill-village families in South Carolina.

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[39] An abbreviation of "food-adult-male maintenance."

A study made of food consumption of farm and village families in central New York in 1925–1927 resulted in the development of another food-cost scale based on the money value of food consumed by families whose diets were nutritionally adequate in energy, protein, calcium, phosphorus, and iron. Cost scales have also been developed by the U. S. Bureau of Home Economics for various types of diets, to which reference has already been made.

Williams in discussing food-cost scales says:[40]

> The difference between the food-scales . . . is partly a matter of the fineness of the steps in which the scales are expressed. The scale for the New York State farm and village families is similar to the scale of the *Statistisches Reichsamt* and of the Bureau of Home Economics adequate diet at moderate cost when summarized to fit the age groups in which they are given. The differences between these scales and the scale representing the food-expenditures in the South Carolina mill-village families is probably due in part to the fact that in deriving the latter scale Sydenstricker and King used Atwater's scale of energy requirements. It doubtless also reflects the fact that the mill-village families are not in a position to provide their children with the relatively expensive foods needed to provide an adequate diet for a growing child. The differences between the four Bureau of Home Economics scales are accounted for by the fact that well-planned diets for young children differ less from one cost level to another than do those of their elders, and that as the family diet becomes more expensive, expenditures for the children's food do not increase so rapidly as do those for the adults.

The food-expenditure scale used by Stiebeling and Phipard in analyzing the diets of employed wage-earners and clerical workers in cities was slightly different from that of any of the scales shown in Table 46. It was based on findings of earlier studies of food consumption of urban and village families spending moderate amounts for foods:[41]

> From the cost of these budgets at 1935 retail food prices, a scale of relatives was derived in which the expenditures for the food of a moderately active man were taken as unity, and the expenditures for persons of different age, sex and activity were expressed as a fraction of this value.

Certain precautions must be taken in using food-cost scales. Errors may arise (1) if a scale, drawn up with one standard or scale of living in mind, is used for another; (2) if a cost scale, based on one set of food prices, is used to analyze consumption when or where prices are very different; (3) if facts concerning level of activity of family members is ignored in applying the scale. In order to have a scale which can be applied on a nation-wide basis, averages must be used, of course, which diverge considerably from the condition affecting many families.

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[40] U. S. Dept. Agr. Misc. Pub. 223, 1935, p. 54.

[41] U. S. Dept. Agr. Cir. 507, p. 6. See also U. S. Dept. Agr. Misc. Pub. 405, p. 372.

In order to allow for change in price from time to time or for difference in price from place to place, the current or local prices should be used. Furthermore, there should be revision of the scales of basic nutrients if and when scientific study indicates that modifications are desirable; and the selection of foods and weights should also be modified with changes in prices and food customs and conventions. When such facts are noted, it becomes apparent that food-cost scales are far from being stable measures.

Cost-Consumption Units

Cost-consumption units, measuring the relative need for all consumer goods, were first used by Engel in 1882 in analyzing family expenditure data. His unit, described as a quet, was the "needs" of a newborn child. He assumed that the expense increased from the time of birth to manhood by approximately the same amount every year. The consumption of a newborn child was taken as 1.0 unit and that of a man of 25 years at 3.5 units. Relative need was largely but not entirely based on need for food. In this connection it is important to note that the group of families studied spent approximately 62 per cent of their income for food.

Sydenstricker and King also computed a cost scale, presumably measuring the relationship of all expenditures for persons of different age and sex, within a given class—the base being those of the average adult male at the age when his total expense reaches a maximum. This unit was called an ammain—an abbreviation of the phrase "adult-male maintenance." It combined the fammain scale, measuring relative need for food,[42] and a scale of relative expenditures for other consumption items, which with food took 89 per cent of family expenditures.

The U. S. Bureau of Labor Statistics, in investigating expenditures of families of wage-earner and low-salaried clerical workers, has classified families by expenditure per consumption unit. The consumption scales included (1) food, (2) clothing, and (3) remaining consumption items. The food-expenditure scale has already been discussed. The clothing-cost scale used was computed separately for each city or group of cities within a region, directly from the data secured on clothing expenditures for persons of different sex, age, and occupation. For items other than food and

[42] *Supra*, p. 256.

clothing, each member of the family was considered the equivalent of an adult male.

Suppose, for example, there is a family of husband, wife, a boy aged 11 and a girl aged 5; and that by the food scale used this family consists of 3.5 food units, 3.2 clothing units, and 4.0 other units. This family, let us assume, spends a total of $1,180 as follows: $420 for food, $240 for clothing, and $520 for other items. In this case the expenditure per unit for food is $120, for clothing $75, for other items $130. The total expenditure per consumption unit is $325. The number of cost-consumption units in the family is $1,180 divided by $325 which equals 3.63 cost-consumption units.[43]

In some studies very simplified scales are used to reduce families to a common unit. Vaile, for example, reduces families to a "per adult unit," using the following scale: persons over 16 years, 1.0 unit; those 10 to 16, 0.75 unit, those under 10 years, 0.50 unit.[44]

Per Capita Income

Because income per capita is a much simpler method of reducing families to a common denominator, it is important to consider the relative merits of cost-consumption units and per capita measures in making interfamily comparisons.[45] Some investigators consider that expenditure or income per capita is just as satisfactory a basis of classification as is expenditure or income per cost-consumption unit. This is true if the distribution of families of various types is much the same in the various income groups. The likelihood of such a condition increases the larger the size of sample.

[43] See "Money Disbursement of Wage Earners and Clerical Workers in 11 New Hampshire Communities," *Mo. Lab. Rev.*, Vol. 42, March, 1936, pp. 554–63; and Faith M. Williams, "Methods of Measuring Variations in Family Expenditures," *J. Am. Stat. Ass.*, 32, March, 1937, pp. 40–6.

[44] See "Impact of the Depression on Business Activity and Real Income in Minnesota," Univ. Minn. Studies in Econ. and Bus. 8, 1933, p. 44.

[45] M. Muse, *The Standard of Living on Specific Owner-Operated Vermont Farms,* Vt. Agr. Exp. Sta. Bul. 340, 1932, pp. 43–9, used a simple correlation analysis to measure the relationship between the value of all living and (1) the value per capita and (2) the value per cost-consumption unit. There was a closer correlation of value of living to the value per consumption unit than to value of living per capita. To the extent that value of living varies with need and to the extent that the consumption units come a little closer in measuring average need than does per capita, such a difference in correlation is to be expected; but only to the extent that greater need brings with it greater income, or reduced savings, or greater withdrawal of part-savings or increase in debt. One or more of these things may have occurred. The cost-consumption units used in this study were similar to those used by E. L. Kirkpatrick, *The Standard of Living in a Typical Section of Diversified Farming,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 423, 1923.

A detailed cost-consumption scale to be satisfactory is in need of frequent revision. Of such scales in general Williams states:[46]

> Scales measuring relative expenditures for persons of different age and sex must be constantly revised to take account of changes in price and consumption habits. Since such scales cannot be transferred, without considerable error, from one social group to another and since the evolution of a new scale that will conform to the behavior of a given group at a given time is an expensive process, an evaluation of the usefulness of such scales in analyzing data on family living is clearly a question of some importance.

Stiebeling reports:[47]

> Figures on a person basis are fairly satisfactory for comparing averages that refer to relatively large numbers of families and that represent equally homogeneous samples of the population.

In summing up, several facts need to be emphasized. Consumption units are useful in so far as they measure relative need. Difficulties are encountered in devising satisfactory scales. Crude measures may be better than none, but refinements may soon prove very costly and may improve the analysis but little if the sample is large. In considering the findings of a study it is always important to discover what consumption scales, if any, have been used. The validity of comparing data where different consumption units have been used should be questioned, although minor variations in scales in many cases may not be important.

Food-Price Indices

A food-price index measures the relative level of food prices, in contrast with those of a base year. By means of an index, food expenditures in different periods can be adjusted so that they provide rough measures of food consumption. If families of wage-earners in 1914, 1918, and 1926, for example, are reported to have an average annual expenditure for food of $329, $594, and $628, respectively, the relative level of food consumption is obscured by the marked differences in food prices for these years. The U. S. Bureau of Labor Statistics index of the food prices with 1913 as base year was as follows: in 1914, 103; in 1918, 166; and in 1926, 149. Thus in terms of 1913 prices the money values of food in the above instances were: $325, $358, and $419, respectively. A food-price index is used at times to adjust the food allowance in relief and other administered family budgets.

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[46] U. S. Dept. Agr. Misc. Pub. 223, p. 58.
[47] U. S. Dept. Agr. Cir. 507, p. 39.

There are wholesale and retail food-price indices. The latter are of greater interest in studying consumption. The same general principles for making indices apply to each. Major steps in the process are: (1) Selection of the foods to be priced, (2) selection of the weights to be used, (3) securing prices for the period to be covered, (4) decision on the best method of combining the prices of the various foods into a single figure, (5) decision on the base period to which figures of other years are to be related.

A satisfactory index must include typical or representative foods; they must be weighted according to their relative importance; typical or representative prices must be secured. For a considerable period 1913 was used as a base year. This for some time was looked upon as a kind of norm, preceding the marked price rise of the war era. For some time 1923–1925 was taken as the base. Since the recent revision of the food-price index, 1935–1939 has been used as the base.[48]

The most important retail food-price index is that of the U. S. Bureau of Labor Statistics.[49] It has published a monthly index of retail prices since 1911, a bimonthly index during 1907–1911, and a yearly index since 1890. Foods selected and weights used have been secured from expenditure and dietary studies of wage-earning families. These have been changed from time to time. At present 84 representative foods are priced and weighted according to their relative importance. The recent study by the U. S. Bureau of Labor Statistics of the families of wage-earners and low-salaried workers was made in order to get a revised list of foods and new weights for the cost-of-living index. Changing consumption habits makes this important. Prices of foods are obtained by correspondence on the fifteenth of each month from retail dealers. Approximately 2,000 stores of various types in 51 cities report food prices. A retail food-price index is available for each of the 51 cities.

The index is especially applicable to the food costs of urban, low-to-moderate-income families. The great bulk of the population falls in this class.

The U. S. Bureau of Labor Statistics also prepares a wholesale food-price index, using 121 foods weighted according to the quantity of foods exchanged. The prices are based on market transactions secured from trade journals, reports of boards of trade, produce exchanges, etc. Because of the greater standardization of products in the wholesale market and the greater ease of securing representative prices, a wholesale food-price index was well established long before a retail index. A comparison of wholesale and retail food-price indices reveals that wholesale prices fluctuate more widely than retail prices but that they show the same general trend month by month.

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[48] See *Monthly Lab. Rev.,* March 15, 1940.

[49] Since 1910 Massachusetts has maintained a cost-of-living index for the state. This includes a food-price index based on 37 foods weighted according to the importance of foods in the U. S. Bureau of Labor expenditures study made in 1901.

A food-price index has also been devised to measure changes in the cost of food purchased by farm families. Such an index is shown in Table 47, along with the food index of the U. S. Bureau of Labor Statistics.

Table 47. Food Price Indices

Year	U. S. Wholesale 1926 = 100	U. S. Retail 1923–1925 = 100	N. Y. Farm Families 1923–1925 = 100 *	U. S. Farm Families 1923–1925 = 100 †
1926	100	97.6	101.6	102.0
1927			99.8	100.0
1928			98.8	100.7
1929	100	105	97.5	98.0
1930	91	100	89.7	90.1
1931	75	82	76.4	71.7
1932	61	68	66.7	59.2
1933	61	66	65.0	62.5
1934	71	74	72.1	71.1
1935	84	81	84.0	79.0
1936	82	82		76.3
1937	86	85		79.0
1938	74	79		

* H. Canon and M. Rollins, *Index Number of the Cost of Goods and Services bought by Farm Families in New York, 1920 to 1935*, Cornell (N. Y.) Exp. Sta. Memoir 199, 1937, p. 3.

† U. S. Dept. Agr., *Agricultural Statistics*. This index, in addition to food, includes clothing, furniture, and other items for family living.

Cost-of-Living Indices

The cost-of-living index is a device used to measure purchasing power of a consumer's dollar and is an important index useful in securing measures of the relative economic status of families from time to time. The retail price food index already discussed is used in computing the cost-of-living index. Separate indices are also prepared for clothing, housing, fuel, and light and all other items. In compiling the cost-of-living index these indices are then weighted according to their importance in the budget of wage-earners and low-salaried clerical workers.[50] Indices are also available for measuring changes in the price of all products purchased for farm-family living.[51]

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[50] For discussion of recent revisions see "The Bureau of Labor Statistics' New Index of Cost of Living," *Monthly Lab. Rev.*, Mar. 15, 1940, pp. 1-38.

[51] See recent issues of U. S. Dept. Agr., *Agricultural Statistics*.

War Affects Price Indices

War often decreases greatly the usefulness of various indices designed to measure changes in prices important to consumers. A major factor is the change in the relative quantity of the various commodities and services used by consumers. A report of control of food in Great Britain states:

> The [food] index is unreliable as an index of the cost of food to the average family in wartime. Rationing has considerably altered the kinds and amounts of foods bought by the people. Goods are no longer available in the same quantities as before the war, and the cost of living in wartime is the cost of buying a different collection of goods from that bought previously. . . .[52]

[52] International Labor Office, *Food Control in Great Britain,* Studies and reports, Series B (Economic Conditions) No. 35, 1942, p. 146.

15

Food Consumption by Income Level[1]

In addition to price, important factors affecting food consumption include income, age and activity, climate, and national origin. Among them income is of great importance. It affects the quantity and quality of the various foods consumed; it leads to an increase in the variety of food served at any one meal[2] as well as to an increase in the variety served throughout the week.

An examination of food consumption by income level is especially important in a society in which national income is very unequally distributed. Where this occurs national consumption, pictured only in per capita figures for the entire population, gives little insight into the actual status of consumption of the majority of the people.

During recent years economists, both theorists and those working in applied fields, have given increasing attention to the effect of income on consumption. They are asking, for example: How will a general increase or decrease of income affect the consumption of meat in contrast with flour, or of eggs in contrast with milk? Will the effect be the same for all income groups? Or will a million-dollar increase in income among low-income families bring a larger increase in consumption than a similar increase at other levels? How will a 10 per cent improvement in family incomes in the South in contrast with the North, for example, affect the consumption of certain foods? What shifts in demand can be expected because unemployment increases or decreases?

A cross-sectional study of incomes and expenditures at a given time provides important data for the study of the probable effects of income change. The two best sources of such data at the present time are (1) the recent survey by the U. S. Bureau of Labor Statistics of incomes and expenditures of families of wage-earners and low-salaried workers in cities and (2) the Consumer Purchases Study. These studies do not include relief families; and the second study excludes families with foreign-born husband or wife. Some data on expenditures of relief families are available from other sources. Many studies of selected commodities are also of interest.

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[1] In this discussion families are classified in various ways: (*a*) by family income and (*b*) by income per expenditure unit. The latter is at times referred to as economic level. In addition some measures of food expenditure are related to the average total expenditure by families within a given income class, and some data are presented wherein families are classified by food expenditure per person.

[2] For difference in variety in English diets with income see W. Crawford and H. Broadley, *The People's Food*, 1938.

Since food consumption is much influenced by income, it is important at the outset to get a picture of present distribution of national income and to examine the total expenditure pattern, of which food is a part.

Distribution of Income

In 1935–1936, 42 per cent of all families in the United States had incomes under $1,000. The larger the city the smaller was the proportion of families with such incomes. The percentage of farm families with incomes below $1,000 was greater than that of non-farm families.[3] There was a much higher proportion of families with low incomes in the South than in the North. This was especially true of farm families. If white families living in cities in the South and the North are compared, however, the income pattern of the two groups is much the same. In considering food consumption for the country as a whole, it is important to keep in mind the income distribution shown in Table 48. In comparing the level of income in various communities, it should be borne in mind that the cost of living in large cities is somewhat higher than in small cities, and that costs on the farm, especially food costs, are considerably lower than in towns and cities.

Total Family Expenditure Pattern

Any general treatise on consumption is likely to contain reference to a "law," usually credited to Engel, that the higher the income or total expenditure the lower is the proportion of income going to food. The distribution of expenditures among the various items of the budget by income levels for 1935–1936 is shown in Table 49. With respect to food three facts stand out: (1) A very large proportion of total expenditure goes to food, especially at the lower income levels; (2) a marked decline occurs as income rises in the proportion going to food; and (3) the proportion of the total expenditure going to all major items other than food and housing rises with increase in income.

By plotting income and expenditure data on a double logarithmic scale, the relative rise in expenditure with rise in income is shown by the

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[3] Income of farm families, as reported, includes living from the farm.

Table 48. Percentage of Families Having Incomes Under a Specified Amount, in the United States, 1935–1936 *

Items	Percentage of Families Having Incomes Under			
	$500	$1,000	$1,500	$2,500
	United States			
All families	14.2	41.7	64.6	87.4
All non-relief families	10.6	35.3	59.3	85.2
All relief families	33.9	76.8	94.2	99.8
Urban communities				
1,500,000 population and over	4.5	18.2	40.1	74.3
100,000 to 1,500,000	6.4	24.5	47.5	78.9
25,000 to 100,000	7.9	31.9	56.4	85.2
2,500 to 25,000	9.4	33.6	59.3	86.3
Rural communities				
Non-farm	11.9	38.1	63.7	87.8
Farm	17.7	52.3	74.9	92.3
Regions	Farm families			
New England	6.4	36.4	65.5	93.5
North Central	7.7	35.1	64.4	90.4
Southern	24.1	65.3	83.3	94.2
Operators	17.2	57.2	78.5	92.3
White	10.9	49.4	73.6	90.2
Negro	38.4	84.2	95.4	99.8
Sharecroppers	46.4	90.7	98.5	100.0
White	29.6	83.7	96.9	100.0
Negro	57.5	95.4	99.5	100.0
Mountain-plains	27.0	59.1	79.8	93.9
Pacific	9.3	33.8	56.4	81.9
	Cities 100,000 to 1,500,000 population			
New England	6.4	29.3	56.6	83.3
North Central	4.2	19.6	43.7	77.0
Southern	10.9	32.9	50.5	78.7
White	5.1	21.6	39.9	73.5
Negro	33.9	77.7	92.1	98.6
Mountain-plains	4.2	21.4	45.6	77.2
Pacific	5.9	23.1	48.1	82.2

* National Resources Committee, *Consumer Incomes in the United States, 1935–1936*, 1938, pp. 25, 98, 99, 100. Except in those places indicated, relief families are not included.

Table 49. Percentage of Total Expenditures of American Families and Single Individuals for Main Consumption Items, by Income Level, 1935–1936 *

Income Level (Dollars)	Food	Housing	Clothing	Household Operation and Furnishings	Automobile	Recreation, Personal Care, and Education	Other Items
Under 500	44	22	8	11	2	5	8
500– 750	42	20	9	12	4	5	8
750– 1,000	40	19	10	12	4	6	9
1,000– 1,250	38	19	10	13	6	6	8
1,250– 1,500	36	18	10	13	7	7	9
1,500– 1,750	35	18	10	13	8	7	9
1,750– 2,000	33	18	10	14	9	7	9
2,000– 2,500	31	18	11	13	10	8	9
2,500– 3,000	30	18	11	14	10	8	9
3,000– 4,000	28	18	12	14	10	9	9
4,000– 5,000	26	18	13	14	11	9	9
5,000–10,000	23	19	13	15	12	9	9
10,000–15,000	20	21	13	15	11	12	8
15,000–20,000	19	18	14	15	10	13	11
20,000 and over	15	20	14	16	12	12	11
All levels	34	19	10	13	7	7	10

* National Resources Committee, *Consumer Expenditures in the United States, 1930–1936*, p. 85.

slope of the lines. Of the items shown in Fig. 5, expenditure for automobiles rises most rapidly and that for food most slowly.[4]

Expenditure data such as these have been used to predict what consumption would be like were income level and income distribution different from that existing at a given time. An estimate of the effect of size of national income on the relative level of expenditure for various items is shown in Table 50. Given here is the percentage difference in the expenditure for various items between a national income of 60 million dollars and that of three other levels, assuming the same population, consuming habits, prices, and distribution of income as in 1935–1936. The relative difference in expenditure is least for food. Next to food are transportation other than automobile, tobacco, reading, and housing.

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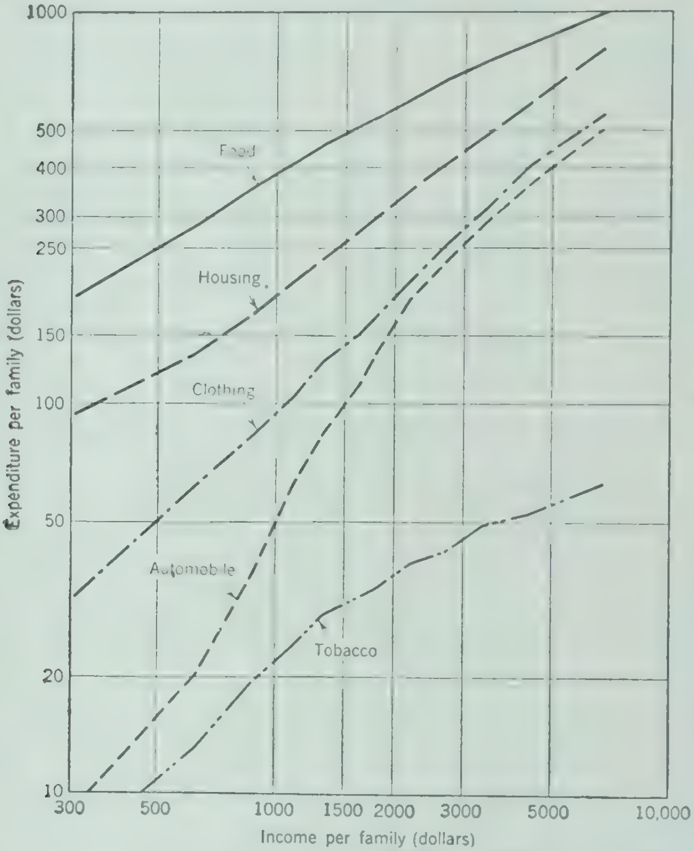
[4] For discussion of relative income elasticity of different items in the family budget see A. D. H. Kaplan, "Expenditure Patterns of Urban Families," *J. Am. Stat. Ass.*, March, 1938, pp. 97–8.

The effect of an increase in national income on the consumption of any one product or group of products obviously depends on how that increase is distributed. The National Resources Committee estimates that additions of 10 and 20 billion dollars to the national income, distributed in such a way that *equal* dollar increases are received by each person, would result in food expenditures' increasing by 12.6 and 23.9 per cent, respectively; whereas the increases in food expenditures reported in Table 50, for similar total increases in income, with distribution pattern as of 1935–1936, are 8.8 and 16.8 per cent, respectively. With equal distribution of the additional income, saving would increase by only 30.8 and 62.0 per cent, respectively, rather than by the 46.4 and 96.1 per cent reported in Table 50.[5]



National Resources Committee
Consumer Expenditures in the United States 1935–1936, p. 84.

FIG. 5. The annual expenditure for selected items in the budget of American families and individuals, United States, 1935–1936. Families classified by income.

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[5] For further discussion of the effect of distribution on the pattern of expenditure, assuming different levels of national income, and for method of estimation used, see National Resources Committee, *Consumer Expenditures in the United States, 1935–1936*, pp. 171–80.

Table 50. Percentage Difference in Disbursements by American Consumers, for Each Category of Expenditure, of National Income at Three Levels in Contrast with National Income of $60 Billions, Assuming the Same Relative Distribution of Income as in 1935–1936 *

Items	Percentage Difference in Contrast with Income of $60 Billion		
	$50 Billion	$70 Billion	$80 Billion
Current consumption			
Food	− 9.7	8.8	16.8
Housing	−12.3	12.0	23.7
Household operation	−14.1	13.8	27.4
Clothing	−15.5	15.4	30.4
Automobile	−21.0	21.0	41.6
Medical care	−15.4	15.2	30.2
Recreation	−19.3	19.3	38.5
Furnishings	−17.6	16.6	32.4
Personal care	−12.6	12.1	23.5
Tobacco	−12.4	11.1	21.1
Transportation other than auto	−11.3	10.9	21.5
Reading	−11.7	11.2	21.6
Education	−20.9	22.3	45.7
Other items	−15.3	15.6	30.9
All consumption	−13.2	12.7	25.0
Gifts and personal taxes	−21.1	22.5	45.9
Savings	−43.2	46.4	96.1
All items	−16.7	16.7	33.3

* National Resources Committee, *Consumer Expenditures in the United States, 1935–1936*, p. 167. It is also assumed for each national income level that the size of population, spending habits of the people, and prices are the same as in 1935–1936.

Variations in Expenditure for Food at a Given Income Level

In studying food expenditures, families usually are classified by income. At any given level, however, food expenditures vary widely. For example, in Table 51 it is shown that among the families of wage-earners

*Table 51. Percentage of Families of Wage-Earners and Clerical Workers, with a Specified Weekly Food Expenditure, per Food-Expenditure Unit 1934–1936 **

Total Annual Expenditures per Consumption Unit	Percentage of Families with Weekly Food Expenditure, per Food-Expenditure Unit					
	Under $1.99	$2.00–$2.66	$2.67–$3.32	$3.33–$3.99	$4.00 and over	All
Under $300						
North Atlantic	32	48	15	4	1	100
East North Central	49	38	11	0	2	100
East South Central	12	65	21	2	0	100
$300–$499						
North Atlantic	7	35	30	20	8	100
East North Central	15	30	38	15	2	100
East South Central	41	40	19	0	0	100

* U. S. Dept. Agr. Cir. 507, p. 11. Only white families included.

and clerical workers in the North Atlantic region, at a given income level, 32 per cent of the families spent for food less than $1.99 per week per food expenditure unit and 20 per cent spent $2.67 or more. Similar differences appear at other income levels and in other regions. Relative preference for food and other items of expenditure as well as efficiency in buying and in food preparation would be an important factor causing such variation.

Shifts in Habits with Change in Expenditure for Food

With higher income an increase usually occurs in the total quantity of most types of food purchased. In addition, a more expensive quality may be purchased than formerly, for example, "good" or "choice" round steak in place of "common." There may also be a shift from cheaper to the more expensive types of food, for example, from round to sirloin steak or from margarine to butter. The increase in expenditure with rising income is also caused to some extent by an increased patronage of retail stores charging more for services rendered. The increase in quantity may occur because foods formerly consumed were inadequate to satisfy hunger or to meet other needs. In part it may be the result of discarding food that has become stale, and the staleness in turn may be related to the desire for variety and quality. Higher income may also lead to some experimentation with foods and to the discarding of those not found to be satisfactory.

The shift with larger income to the more expensive quality or type of food may occur because personal preferences can now be indulged more fully. In addition, social valuation, the esteem or odium attached to various foods, may have affected choice. The importance of prestige is held by some to be especially important in influencing the choice of food by families of moderate income. Wealthy families, having more substantial signs of social status than the type of food eaten, may feel free to enjoy garlic flavor without the fear of being classed as "slum dwellers."

Expenditure studies that show increasing cost per unit of various foods, with rise in income level, provide evidence of the change in quality purchased. The relation between income and quality purchased is brought out more clearly, however, in studies of special commodities. Alsberg reports,[6] for example, that with the depression,

> Many more persons than before sought to buy day-old bakery goods, because they were cheap. Many "stale" or "day-old" stores were opened in cities; and relief agencies bought day-old bread at reduced prices. Some bakeries, in addition to their regular line, offered their day-old products as second grade in lieu of producing a separate low-priced line.

Furthermore, potatoes of comparable grade, and undoubtedly other foods as well, sell for higher prices in stores in high- than in low-income areas.

A study of milk consumption in Canadian cities shows a marked decline in the consumption of Grade 1 milk and a rise in Grade 3 milk with a fall in income. (See Fig. 6.)

The immediate effect of change in income on the consumption of or expenditure for any one food or of foods as a whole may be rather different from the long-run effect. When family income first drops to a new low level, there may be an immediate retrenchment, affecting food along with other items, and some foods more than others. In some cases the retrenchment may not occur until it becomes evident at the end of a week, a month, or some other accounting period that expenditures are exceeding funds available, and that unpaid bills are piling up; or that the day-to-day expenses are not leaving enough to meet the occasional or recurring expenses —many of which require fairly large amounts to be accumulated. On the other hand, the immediate effect of an income reduction may be the cutting of food expenditures much more than will be necessary later. Food involves day-to-day expenditures which permit considerable flexibility; whereas such items as rent and insurance involve long-time commitments that do not permit immediate adjustment without considerable inconvenience and loss.

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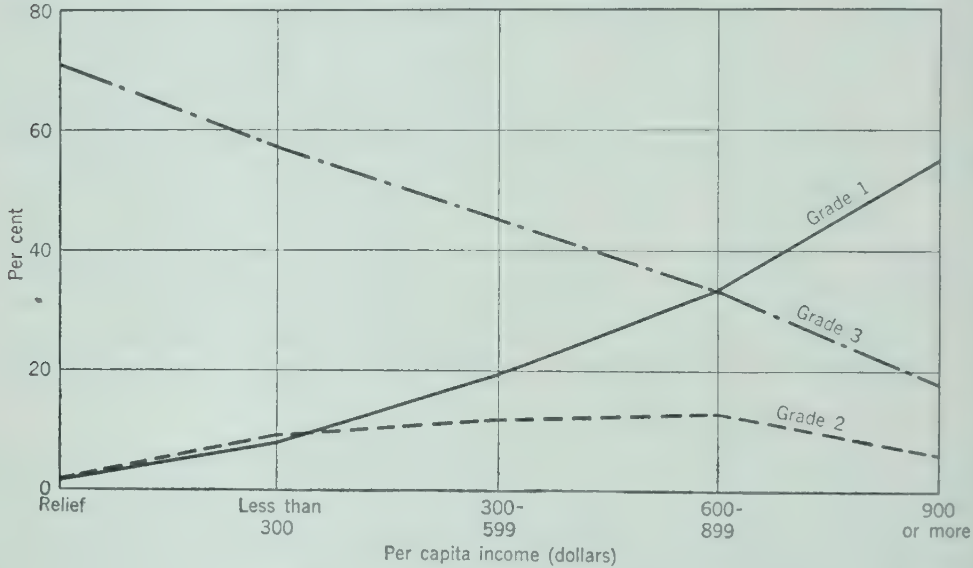
[6] C. L. Alsberg, "The Stale Bread Problem," *Wheat Studies of the Food Research Institute,* Vol. 12, February, 1936, p. 223.

If the low level of income continues, adjustments may finally have to be made in these. Such adjustments may permit an expansion in food expenditures. Habit plus ignorance of low-cost substitutes for customary foods interferes with adjustments. As time goes on, low-cost foods come to be known and accepted. There are, without doubt, many ramifications of a family's adjustment to decreased income. It appears true in general that the change in the consumption of any one food, with a fall in income, is probably more inelastic in the short run than in the long run, although exceptions to this can doubtless be found.



C. I. Johnston and W. C. Hopper
An Economic Study of the Consumption of Milk and Cream in Vancouver
Dom. Can. Dept. Agr. Pub. 678, Tech. Bul. 25, 1940, p. 14.

FIG. 6. Percentage of households in each per capita income group using each grade of pasteurized milk.

Interesting speculations can also be made on the effect of a rise in income. It may lead to a great immediate increase in consumption of some foods. Temporarily at least, the family may feel able to indulge freely in the consumption of certain foods that later, when the novelty is worn off, will occupy a less important place in the diet. This effect seems likely to be greater for luxury foods like poultry and steak than for such items as potatoes and milk.

Analyzing Food Consumption

In analyzing food consumption in relation to income or expenditure level the consuming units considered may be any one of three types, that is, a family, a person, or a consumption or expenditure or cost unit.[7] The consuming units may be classified by current income, total expenditure, or food expenditure. Important differences in food consumption for such groups might be shown by presenting:

1. The percentage of families reporting the consumption of specified foods during a given period of time or at various meals.
2. The quantity of foods consumed in physical units.
3. The expenditure for total food, selected foods or groups of foods.
4. The ranking of foods in order of relative importance, either in terms of frequency with which foods appear in the diet or of expenditure for or physical quantities of selected foods or groups of foods consumed.*
5. The average price per unit of foods purchased.
6. The rate of change in consumption of all food in dollars, or of selected foods and groups of foods either in physical units or dollars in relation to rate of change in income or total expenditure.
7. The rate of substitution of one product with a closely competing one as income or total expenditure changes.
8. The distribution of the food dollar among various foods.

* This method is, for example, used in Tables 56 and 62.

Relationships may be studied for separate cities, for cities classified by size, for various regions, for urban, rural, and farm population. This outline of possible classifications makes apparent the multitude of relationships that might be studied. Only a few can be explored in the discussion that follows.

Shifts in the Food Pattern with Change in Economic Level

An all-over picture of the influence of economic level on food consumption can be secured through noting its effect on the percentage of the total food expenditure going to various foods. For families of wage-earners and clerical workers, the higher the economic level the greater the percentage of the total food dollar going to "meat, fish, and poultry," "citrous fruits and tomatoes," "green, leafy, and yellow vegetables," and "other fruits and vegetables"; and the lower the percentage going to "eggs," "milk, cheese, and ice cream," "grain products," "potatoes," "sugars and sweets." (See Table 52.)

Income Elasticity

The rate of change in the consumption of a product with change in income, all other things remaining the same, is a measure of its income

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[7] For discussion see Chapter 14.

Table 52. Percentage Distribution of Expenditures for Food To Be Prepared at Home of 14,469 Families in 42 Cities Combined, by Groups of Items

(Data Cover 12 months within the period 1934–36)*

Type of Food	All Families	Families with Total Annual Unit Expenditure of—		
		Under $400	$400 to $600	$600 and over
Annual per capita expenditure	$128.11	$96.76	$139.11	$180.90
Meat, fish, and poultry	24.1	22.4	24.3	25.6
Eggs	5.6	5.9	5.5	5.3
Milk, cheese, ice cream	12.7	13.7	13.0	11.2
Fats	10.8	11.0	10.7	10.8
Grain products	15.6	18.2	15.0	13.1
Citrous fruits and tomatoes	5.0	4.1	5.2	5.9
Green leafy and yellow vegetables	7.4	6.6	7.6	8.3
Potatoes	2.3	2.6	2.2	2.0
Other fruits and vegetables	5.5	5.0	5.7	5.9
Sugars and sweets	3.4	3.7	3.4	3.1
Miscellaneous	7.6	6.8	7.4	8.8
Total Percentage	100.0	100.0	100.0	100.0

* "Food Expenditures of Wage Earners and Clerical Workers," *Monthly Lab. Rev.*, August, 1940.

elasticity. Other terms describing this relationship have been used, for example, scale or order of urgency [8] and degree of indispensability.[9]

Very obviously the change in amount of a commodity consumed with change in income differs for various commodities. A product is said to be inferior if a rise in income brings a decline in the amount consumed. In this case its income elasticity is said to be negative. If the amount of the commodity consumed remains the same, with rise in income, its income elasticity is zero; whereas if the amount of the product consumed rises with rise in income its elasticity is positive. If the amount consumed rises at the same rate as the income, its income elasticity is 1. If consumption rises faster than income, income elasticity is greater than one, and vice versa.

The relationship between change in income and the amount consumed can be measured by plotting the data on a double logarithmic scale. When income elasticity is 1, the quantity of product plotted against income will have at least a 45-degree angle. If the degree of elasticity is less than 1, the line representing their relationship will be less than a 45-degree slope. If income is plotted on a horizontal axis and quantity of the product on a vertical axis, a downward sloping line indicates an inferior product. If data on a double logarithmic scale are represented by a straight line, the elasticity is the same at all points.

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[8] See R. G. D. Allen and A. L. Bowley, *Family Expenditures*, 1935.

[9] "Consumption: Problem of Measurement," *Encyclopedia of Social Sciences*, Vol. 4, p. 298.

A product may be inferior at one income level and not at another. As income rises from a very low level consumption of ground beef, for example, may increase; further rise in income may bring a decline in its consumption.

The shifting of consumption with change in income occurs largely because products to a greater or lesser degree are substitutes. If two products are close substitutes, a rise in income will result in an increase in the consumption of the one more highly preferred and a decrease in the consumption of the one less highly preferred; for example, with a rise in income margarine is replaced by butter and ground beef by roasts and steaks. The proportional change in the ratio of the amounts of two foods consumed divided by the proportionate change in the ratio of the incomes gives a numerical measure of the income elasticity of substitution.

Price and Income Elasticity

In Chapter 13 it was pointed out that price elasticity is influenced by income level, and it has just been noted that both price and income elasticity are determined largely by the substitutes available. The two factors, price and income, however, affect consumption in different ways—change in price because it affects price differentials—whereas a change in income affects the marginal utility of dollars to be spent, a rise in income making any existing price differential less important than formerly. Furthermore, it must be borne in mind that a price change has an effect on real income however small it may be at times. If one is studying the price elasticity of a group of products, such as meat or fresh fruit and vegetables that take a fairly large share of the consumer's food money or total budget, any measure of price elasticity is likely to be compounded of some income as well as of a price effect, and a resemblance partly spurious may appear.

It is of interest to consider whether a product with a low price elasticity is likely also to have low income elasticity, and vice versa.[10] It is true that the existence of a substitute is important in each case. It seems highly probable that a food extremely inelastic in response to price changes, because of being considered a necessity with no close substitutes available, might be expected to have a low although not necessarily a negative income elasticity. If two products are substitutes, a 10 per cent rise in the price of either one will tend to cause a decrease in its consumption. This decrease would occur whether the product whose price had fallen is a superior or an inferior product. A 10 per cent rise in income, on the other hand, would cause the consumption of the superior product to increase and that of the inferior product to decrease.

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[10] W. H. Lough, *High Level Consumption,* 1935, Chapter 8, attempts to compare relative price and income elasticity.

Evaluation of Data Available for Measuring Income Elasticity of Food

Knowledge of income elasticity of various products may be derived from family-expenditure data. In order to determine the effect of income alone on consumption of any specified product, the groups whose consumption is being compared should differ in one thing only, namely, income. Data available are, for the most part, far from perfect in that the various income categories include consumer groups that differ in many ways besides dissimilar incomes. Because family expenditures are likely to be used widely for crude measures of income elasticity, it is important to set up criteria for desirable data for measuring income elasticity and then to appraise the data which are available.

The more nearly the data come to having the following characteristics the more suitable they are for measuring income elasticity:

(*a*) The average size and composition of families in each income group are similar. It is a well-known fact that in any cross-sectional study of our society the average number of persons per family tends to increase with increase in income and the composition of the families to change somewhat. For the purpose, then, of having comparable data it may be necessary to include in the analysis only families of a selected type, or to classify them on the basis of income per consumption or expenditure unit in order to allow for differences in family size and composition at the various income levels.

(*b*) The scatter of tastes and preferences of families within each income category is the same. Consequently families in each income group being compared should be equally represented as to occupation, nationality, composition of families, and region.

(*c*) Families are closely similar in income or expenditure history. To this end no income category used should be heavily weighted, for example, with families who have recently shifted from another income class and have not yet adjusted their expenditures to present income. If data are secured during or shortly after a considerable change in the income structure, they might be considered of questionable value in measuring income elasticity.*

(*d*) Families are in the same market situation with similar prices and products of similar quality available. Usually this requirement is adequately met if the income groups being compared are all in one city or in a similar environment. Apart from the influence of local prices such as milk, it should be possible to look upon cities of given population in one region as having much the same market. Historical comparisons may be invalidated because of change in prices as well as changes in preferences. A different income elasticity for any food might occur for every combination of prices.

(*e*) Data are provided on physical consumption as well as on expenditure for each separate product and its important qualities.

* In any income category there may be families who for a long time have been at that income level, as well as families that have moved in from lower and from higher income levels. Historical data on the income and expenditure of families would aid in getting each income or expenditure class homogeneous as to income or expenditure experience in recent years.

Having set up the characteristics of data which are desirable in getting a measure of income elasticity, it is of interest to comment further on the data that are available. They are unsatisfactory on several scores:

Many families during the year for which information was given had large deficits. It is thus obvious that their consumption pattern was not in line with current income, for they could not continue year after year piling up deficits. The long-run consumption pattern for certain income groups is very much obscured by the presence in them of families whose consumption pattern did not fit the income. There seems little doubt that in some income categories savings were larger than were customary. Lack of long-run adjustment is, however, not so obvious when it expresses itself in this way because families could keep piling up savings year after year. Because of the discrepancy between income received and the money expended, many measures of elasticity presented have related food expenditures to the average total expenditure of families in each income category—rather than to average current income.

Average family size and composition is not the same for all income categories. Income or total expenditure per capita or per consumption unit comes closer to measuring economic level than does income per family. The difference in measures of "income" elasticity, according to the method of classifying consuming units, is brought out by the data in Table 53. Here food expenditure is compared with total expenditure—the consuming units being in one case an expenditure unit and in the other case the family. The measures of elasticity[11] secured are considerably higher when family

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[11] For the sake of simplicity the term income elasticity is used. The data in Table 53, column 1, might be described as measures of the total expenditure

Table 53. "Income" Elasticity of Total Food Expenditure with Different Classifications; Selected Cities in the United States, 1934–1936 *

City	Measure of "Income" Elasticity	
	Food expenditure per food-expenditure unit in relation to total expenditure per expenditure unit	Food expenditure per family related to total expenditure per family †
	(1)	(2)
New York	0.74	0.85
Detroit	.54	.75
Los Angeles	.60	.79
Boston	.71	.76
Minneapolis–St. Paul	.56	.83

* U. S. Bur. Lab. Stat. Bul. 636, 637, 639, and 641.

† Families were classified by income, and the average total expenditure for each income class was related to food expenditure. The very low income groups showing large deficits and the few very high income families were excluded. Many of the data were plotted on a double logarithmic scale, and in every case a straight line was a fairly good fit.

data are used; and the difference in the measures of elasticity secured from these two relationships varies greatly from city to city.

In some of the data available families are classified by type. But some types include a great variety of families so that the average size and consumption may still vary somewhat with income. Furthermore, no distinction by family type is made for the most detailed data on food consumption.

Data for any one city cover a wide range of occupations and nationalities which are not represented in equal proportion within any given income class. Relatively little is known of difference in preference by occupational groups.

Products, as reported, cover for the most part a wide range in quality; and it is a well-known fact that shifts in quality of product occur with change in income. Facts are given, however, on variations with income in the price paid per pound. In this way some evidence of the shift in quality can be secured. With varying quality purchased at different income

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elasticity of food expenditure. Such a phrase is awkward and confusing, to say the least. Furthermore, in column 2, families are classified first of all by income, but the average expenditure of the income group rather than the average income is used in the measurement.

levels change in expenditure as well as change in physical quantity is important.

Consumption of separate foods is reported only for those foods consumed at home, and the importance of such consumption varies greatly with income. For example, among Chicago families 5.3 per cent of the total food expenditure for families with incomes from $1,000 to $1,249 was spent for food eaten away from home. For families with incomes from $4,000 to $4,999 the proportion was 22.8 per cent. The income elasticity of food eaten away from home is much greater than of food eaten at home.

Data on food consumption available are very satisfactory on two scores: First, consumption in large cities and various regions is presented separately so that families classed together to a very large extent have an identical market situation in so far as the situation of families in a large city can be so described. Second, during the period in which the data were secured prices were fairly stable.

Without further refinement the data available on food consumption may be used to determine (1) fairly accurate measures on the "income" elasticities of food as a whole for families of wage-earner and clerical workers, (2) less accurate measures of income elasticities of food as a whole for families in general, and (3) somewhat cruder measures of income elasticities for the separate foods and groups of food. A major defect in securing measures of the last lies in the varying importance of food eaten outside the home. Measures of income elasticity derived from the data are useful chiefly in indicating relative elasticities of food in relation to other consumer expenditures and among various foods. They should be helpful in visualizing not only the direction of the influence on consumption that change in income would exert but also its relative effect on the consumption of various foods.

"Income" Elasticity of Total Food Expenditures

In Table 53 are shown income [12] elasticities of total food expenditure for families in selected cities. And in Table 54 income elasticities are given for selected farm families. These elasticities relate only to native-born, white, non-relief families, exclusive of sharecroppers.

Income elasticity of food expenditure among farm families is less than that of city families.[13] Many factors may be responsible for this difference, for example, relatively low food prices occur among farm families so that

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[12] Food expenditures are studied in relation to total expenditure or value of living. The term income is used in describing it for simplicity. In fact it may be a better measure of real income than is the money income.

[13] Data in Table 54 should be compared with those in column 2, Table 53.

Table 54. "Income" Elasticity of Total Food Expenditures, for Selected Farm Families in the United States, 1935–1936 *

Location	Type of Farming	"Income" Elasticity—Food Expenditure per Family Related to Total Expenditure per Family
Vermont	Dairy	0.50
Ohio and Pennsylvania	General	.59
Michigan and Wisconsin	Dairy and general	.62
Iowa and Illinois	Animal specialty and general	.40
North Carolina and South Carolina	Tobacco and cotton	.64
Georgia and Mississippi	Cotton	.47
Oregon and Washington	General and dairy	.48
California	Fruit	.46

* Mimeographed releases of the U. S. Bur. Home Econ. Only native-born, white, non-relief families are included. Sharecroppers are excluded. Families are classified by income, and then average total expenditure for each income group is related to total food expenditure. The very low income groups showing large deficit and the few very high income families were excluded. Many of the data were plotted on a double logarithmic scale and in every case a straight line was a fairly good fit.

low-income farm families come closer than low-income urban families to satisfying their "food needs." There is also an absence of inducement to farm families to eat out. It has already been pointed out that among urban families expenditure for food eaten away from home increases rather sharply with increase in income; for such expenditures "income" elasticity is high.

Consumption studies indicate that income elasticity is somewhat greater at the low- than at the high-income levels. Gilboy reports the income elasticity among applicants for work relief in Cambridge, Massachusetts, to be 0.8 when influence of family size is eliminated, and 0.9 when families are classified merely by income.[14]

Home Consumption of Selected Foods

From this general picture of income elasticity we turn to the difference in consumption of separate foods and food groups by income levels.[15] (See,

[14] E. W. Gilboy, *Applicants for Work Relief,* 1940, p. 259. Details are given for the separate types of food. The pattern of food expenditures is very similar to that for low-income families in the New England area, as shown by the studies of the U. S. Bur. Lab. Stat.

[15] Data available relate only to those foods consumed at home. This makes the measures of elasticity, derived from the data in most cases, smaller than they would be were the total expenditure for various foods included.

for example, Fig. 7.) Income elasticity,[16] substitution, shift in importance, and change in price per unit will be among the things considered.[17]

Some comparisons are made of the relative income elasticity of various foods. They are very crude. In determining them family income and expenditures for the foods were plotted on double logarithmic paper and the slope of the lines compared.

The consumption of selected foods at various food-expenditure levels by the families of wage-earners and clerical workers in various parts of the country is shown in Fig. 8. Although the basis of classifying families is different from that used in the detailed description of foods which follows, the general picture presented is much the same.

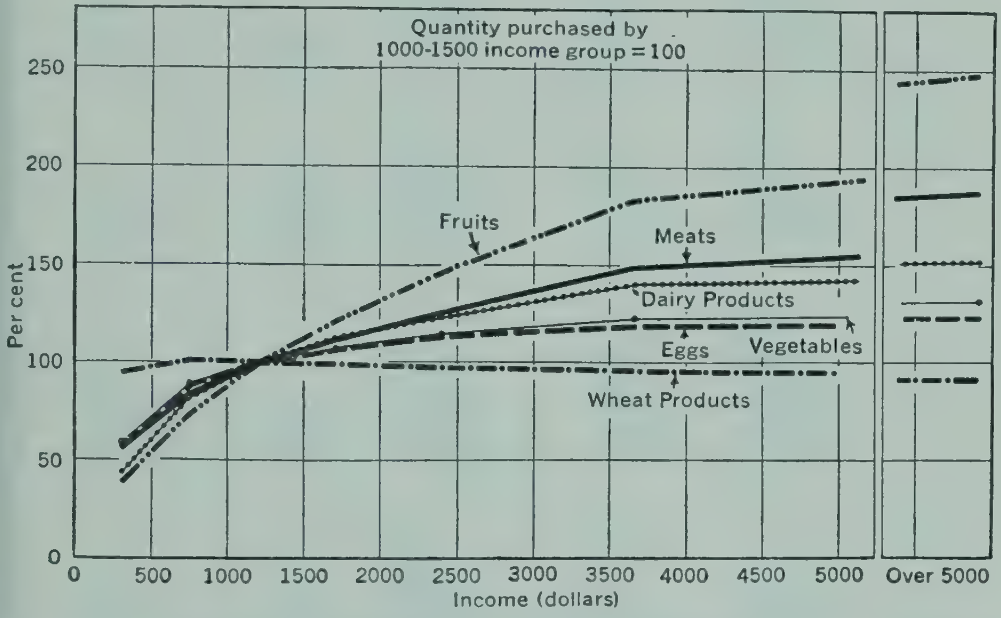

FIG. 7. Purchases of selected foods, families classified by income, 1935–1936 (non-farm, non-relief, native white families).

In Table 55 is presented a picture of changes with income in physical quantities of various foods among non-relief village and city families. Where qualities purchased increase with rise in income, increase in expenditures is even more marked.

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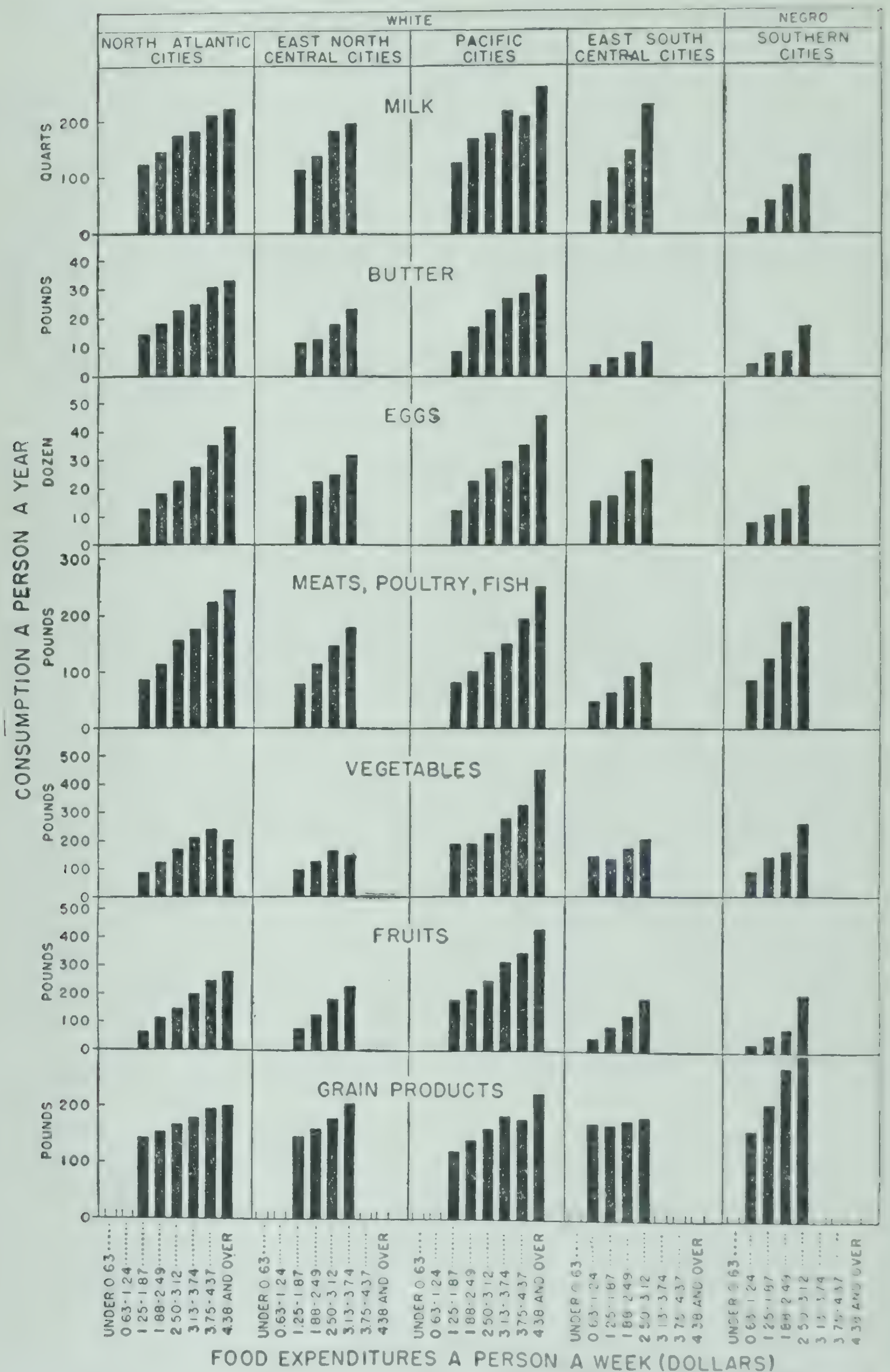
[16] Unless otherwise stated, this refers to expenditure for the food per family in relation to total expenditure for family living at a given income level. The increase in expenditure may be due to payment of a higher price per unit rather than to the purchase of a larger quantity.

[17] Unless otherwise indicated, data on separate foods are taken from U. S. Bur. Lab. Stat. Bul. 648, Vol. II, and relate to consumption for the period May to August.



U. S. Dept. Agr. Cir. 507, 1939, p. 33.

FIG. 8. Average consumption per person per year of specified articles or groups of foods, by families in different regions spending different amounts for food.

Table 55. Relation of Income to Food-Consumption Habits: Relative Consumption of 12 Specified Groups of Food by Non-Relief Village and City Families, Classified by Income, 1936–1937 †*

(Quantities Consumed by Families in Income Class $1,000–$1,499 = 100)

Family-Income Class	Milk or Its Equivalent	Potatoes, Sweet Potatoes	Mature Dry Beans, Peas, Nuts	Tomatoes, Citrous Fruit	Leafy, Green, Yellow Vegetables	Other Vegetables and Fruit	Eggs	Meat, Poultry, and Fish	Flour,‡ Cereals	Butter	Other Fats	Sugar
Dollars	%	%	%	%	%	%	%	%	%	%	%	%
Under 500	45	65	95	30	54	47	57	50	124	47	119	85
500– 999	78	96	109	71	81	77	88	83	101	83	102	92
1,000–1,499	100	100	100	100	100	100	100	100	100	100	100	100
1,500–1,999	104	103	93	123	113	118	106	113	101	112	100	98
2,000–2,999	112	103	86	148	127	136	112	127	102	121	100	101
3,000–4,999	123	103	82	186	145	166	119	149	102	134	106	104
5,000 or over	129	102	93	232	163	218	123	190	110	142	112	108

* U. S. Dept. Agr. Bur. Home Econ., May 12, 1941. Mimeographed and distributed at the National Nutrition Conference.

† Source of data: Food-estimate schedules, Consumer Purchases Study.

‡ Includes two-thirds of the weight of baked goods.

Meat, Fish, and Poultry [18]

At all income levels and in all regions meat occupies an important place in the food budget. Since the percentage of total food expenditure going to meat rises with income, expenditure for meat has a greater income elasticity than that for total food.

Expenditure for broad classes of most meats, for example, beef, fresh pork, smoked and cured pork, etc., rises with increase in income. The rate of change in expenditure with change in income differs greatly with the various meats. Some of the differences are shown in Fig. 9. Of the products shown here expenditures for sirloin steak,[19] poultry, and smoked and cured pork (other than salt side) show the sharpest rise with income. Round steak shows a tendency to rise, especially from the low to moderate income levels. In the North ground beef is an inferior food. In the Southeast, however, its consumption is in general at a low level and expenditure rises with income.[20] In the Southeast salt pork side is an inferior meat, apparently occupying much the same position as ground beef does in the North. Expenditure for fresh pork appears to change little with income.

The income elasticities of poultry and sirloin steak are more nearly alike at the upper than at the lower income levels. At the low-income levels the low-income elasticity of expenditures for poultry may be the result of the symbolic importance of poultry for some festivals and other special occasions, including Sunday dinner. This low-income elasticity of poultry is especially marked for families in New York City and Chicago.[21] The proportion of the Jewish people in the population in these cities may have an important bearing on this fact. Poultry consumption among Negro families in the Southeast is somewhat higher than among white families with similar income. The income elasticity is, however, much the same.

The relative rank of the expenditures for various types of meat at a given family income level is shown in Table 56. At every income level

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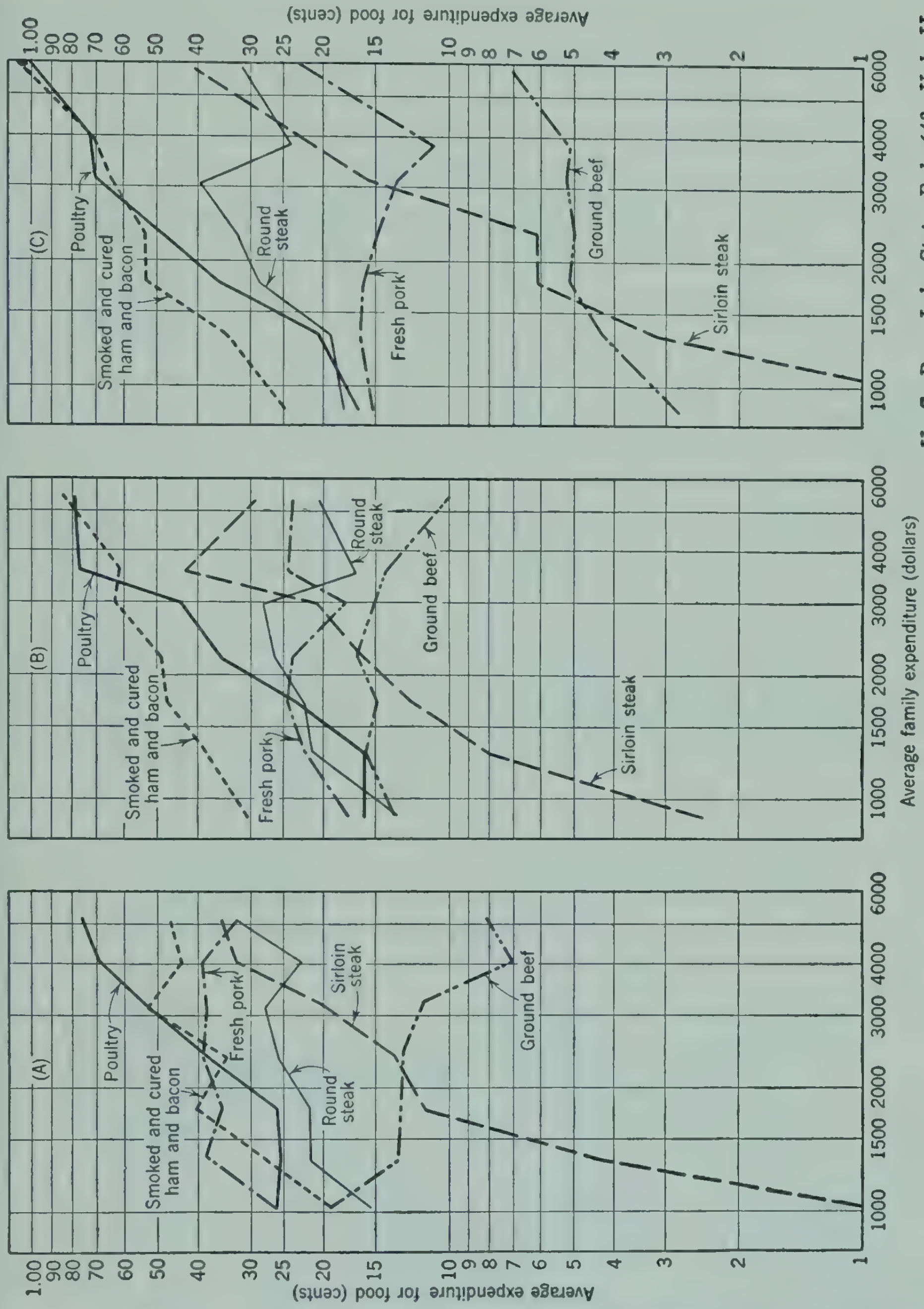
[18] For further discussion of meat consumption see W. C. Waite and R. W. Cox, *A Study of the Consumption of Meats in Minneapolis, 1934*, Minn. Agr. Exp. Sta. Bul. 321, 1935; G. W. Sprague, *Economic Survey of the Live Poultry Industry in New York City*, U. S. Dept. Agr. Misc. Pub. 283, 1937, especially pp. 58–71.

[19] The rate of change with income is much the same for rib roast as for sirloin steak.

[20] The meat consumption of Negro families seems to follow the same general pattern as that of white families of the South.

[21] U. S. Dept. Agr. Misc. Pub. 283, *op. cit.*, p. 64, reports for New York City that, when adjustments were made for difference in nationality and size of family, the percentage of families reporting the purchase of poultry during the previous week rose sharply to an income of $40 a week. From there on little increase was noted.



U. S. Bur. Lab. Stat., Bul. 648, Vol. II.

FIG. 9.

FIG. 9. Food expenditure for poultry and four types of beef in relation to total expenditure, May to August, 1935–1936, families classified by income level. (*A*) New York City and Chicago. (*B*) New England and East Central, 2 large and 5 middle-sized cities. (*C*) Southeast, 1 large and 2 middle-sized cities.

Only non-relief, white families with native-born husband and wife are included. The expenditure data by income classes are taken from Tables 1 and 2 of the source material. It is assumed that the expenditures by income classes for the families providing the food check lists were the same as for all families.

Table 56. Average Ranking of the Expenditures for Specified Meat Products, within Selected Income Groups, for 5 Regions, May through August, 1935–1936 *

Items	Income					
	$500–$999	$1,000–$1,499	$1,500–$1,999	$2,000–$2,999	$3,000–$3,999	$4,000–$4,999
Beef	1.2	1.0	1.0	1.0	1.0	1.0
Veal	5.4	6.1	5.8	6.8	6.0	6.2
Mutton and lamb	7.4	7.1	7.4	6.8	5.8	4.6
Fresh pork	2.8	3.2	3.4	3.8	4.8	6.8
Smoked and cured pork	2.8	3.2	2.8	2.8	3.2	2.8
Bologna and sausage	4.8	5.8	6.4	7.0	8.0	7.0
Poultry	6.2	4.8	3.6	3.4	2.6	2.4
Sea food	5.4	4.8	5.6	4.4	4.6	5.2

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II. The group of 9 small cities in New England and East Central region was omitted since top income category is $4,000 and over. For each income group, the meats listed were ranked according to the amount spent, the meat with highest expenditure being given a ranking of 1. The rankings for 5 tabulation areas were averaged. (Average ranking for beef is 1.2 at all levels below $3,000 even if the expenditures for fresh, smoked, and cured pork are combined.)

Table 57. Average Ranking of Expenditure of Families for Specified Cuts of Beef, within Selected Income Groups, for 6 Areas, May to August, 1935–1936 *

Cut of Beef	Income		
	$500–$999	$1,500–$1,999	$4,000–$4,999 †
Steak, round	1.7	1.0	2.4
Pot roast, rump	2.3	2.8	2.8
Ground beef	3.5	3.0	5.8
Pot roast, chuck	3.8	4.7	6.4
Boiling, plate	5.2	7.6	9.4
Liver	4.8	7.8	6.6
Loin roast	6.0	8.2	6.0
Steak, sirloin	7.8	4.0	1.4
Roast, rib	8.7	7.0	5.8
Corned beef	9.2	8.9	8.4

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II.

† In this income group the small cities for the New England and the East Central regions are omitted because of lack of comparable income classification.

beef holds first place.[22] Fresh pork declines in relative importance with rise in income. So also does bologna and sausage, whereas poultry increases sharply.

The shift in importance of beef cuts is shown in Table 57. With rise in income a striking drop occurs in the importance of ground beef, boiling plate, and chuck pot roast, whereas a marked rise occurs in the importance of sirloin steak and rib roast.

Average prices per pound paid for selected cuts of meat by families at two income levels in two cities is shown in Table 58. In these cases the reported price per pound of ground beef, for example, increases relatively less with rise in income than does the price per pound of sirloin steak. "Bologna and sausage" show more difference in price than does pork sausage; the price of sliced bacon and sliced ham, more variation with income than does fresh pork.

*Table 58. Price Paid (in Cents) per Pound for Selected Meats by Families with Specified Incomes (a) in New York City and Chicago and (b) in Two Large and Four Middle-Sized Cities in the West Central and Rocky Mountain Regions, May to August, 1935–1936 **

Meat	New York City and Chicago		West Central and Rocky Mountain Regions	
	$500–$999	$4,000–$4,999	$500–$999	$4,000–$4,999
	cents	*cents*	*cents*	*cents*
Round steak	28.9	32.0	22.9	27.3
Sirloin steak	28.5	36.2	23.3	34.2
Pot roast, rump	23.3	26.1	21.0	20.6
Ground beef	18.7	23.7	15.0	17.8
Fresh pork chops	29.2	30.9	25.5	28.1
Sliced bacon	34.1	37.1	33.5	39.2
Sliced ham	39.6	41.6	33.4	39.2
Bologna and sausage	24.2	37.7	20.2	29.2
Pork sausage	19.6	29.0	22.5	23.3
Chicken, roasting	26.8	30.4	25.1	27.7
Fresh fish	19.6	28.0	20.7	27.7

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II, Table 5.

The association of high expenditure for meat and poultry with high income is partly the result of the greater use of the more expensive cuts and the more expensive quality of such cuts. As a result, the pounds of meat and poultry consumed per capita does not differ as much with income as does the expenditure. This fact is brought out in Fig. 10. Meats are classified as inferior (those whose consumption declines with increase in income) and superior (those whose consumption increases with increase in income).[23] As income increased there was a slight increase in the total pounds per capita. It was, for example, 13 per cent higher for those

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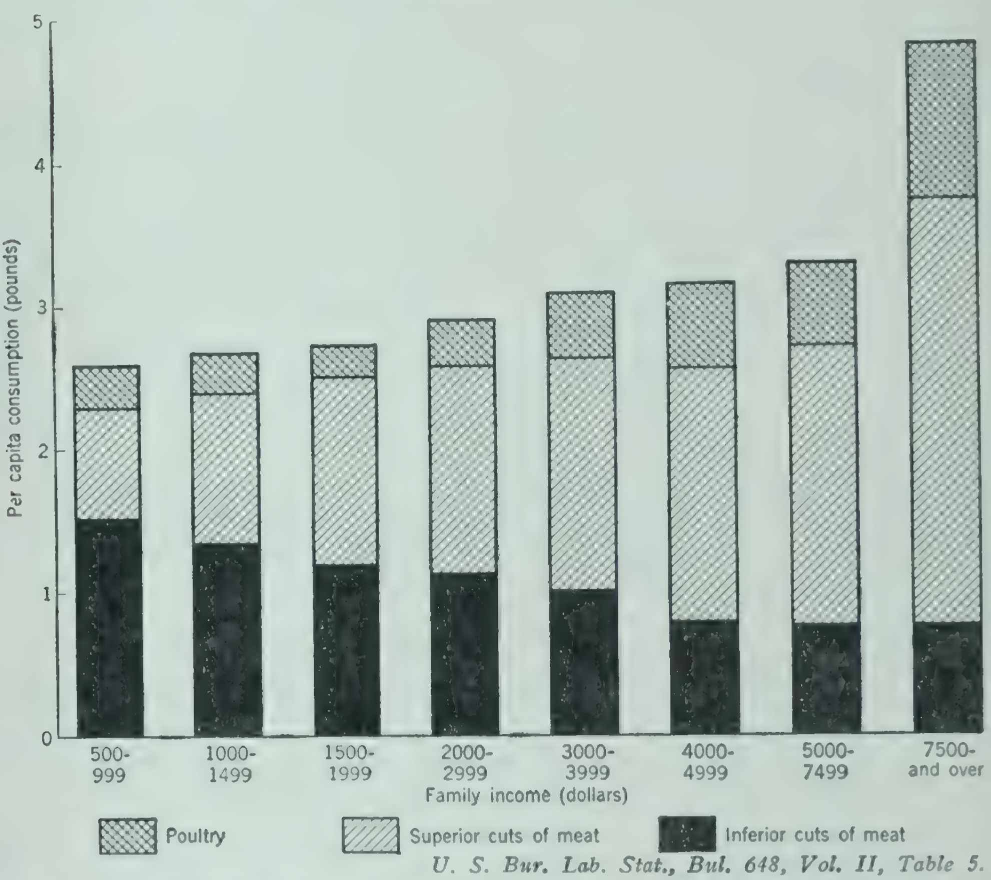
[22] W. C. Waite and R. W. Cox, *op. cit.*, p. 19, found in Minneapolis that poultry was equal to beef in importance at the highest income level.



U. S. Bur. Lab. Stat., Bul. 648, Vol. II, Table 5.

FIG. 10. Per capita consumption of meat and poultry in New York City and Chicago, 1935–1936. Except that both meat and poultry consumption is lower, much the same pattern of meat consumption is apparent in the New England and the East Central regions (2 large and 5 medium-sized cities).

[23] Meats were classified as inferior or superior by inspecting the general tendency with change of income. Included in the inferior meats were the following: rump and chuck roast; plate and "other" boiling meat; ground meat; veal stew; fresh pork; salt side and pickled pork; bologna and "other" sausage; and canned meat. Included in the superior meats were: round, sirloin, and "other" steak; lower round (pot roast), loin, rib and "other" roast; dried beef; corned beef; liver; veal chops; veal cutlets; veal roast; mutton and lamb; and bacon, ham, and cooked whole meat. Regions differ somewhat in the cuts whose use declines with rise in income.

families with income of from $5,000–$5,999 than for those families with income from $1,000–$1,499. The increase in poultry consumption with income was somewhat like the increase in the consumption of the superior meats.

Eggs [24]

In most regions eggs have a positive income elasticity slightly less than that of butter and fluid milk.

Egg consumption in the Southeast is on a higher level than in other parts of the country, but the income elasticity appears to be very much the same in the various regions.

Income elasticity is somewhat greater at the lower than at the higher income levels.

In New York City and Chicago, average price per dozen paid by families reporting during May through August ranged from 29.4 cents, for families with incomes from $500 to $999, to 34.3 cents per dozen for those with incomes over $7,500. The corresponding range for the period September through November is 33.0 to 46.3 cents.

Dairy Products Other Than Butter [25]

Studies do not agree on the varying importance of dairy products in total food expenditures. When families of wage-earners and clerical workers are classified by economic level (see Table 52), the higher the economic level the lower is the percentage of total food expenditure going to dairy products. When families reporting in the Consumer Purchases Study in New York City and Chicago are classified by family income, it is found that those with incomes of $500 to $999 spent 14.3 per cent of the food dollar for dairy products other than butter. For the income groups of $5,000 to $7,499 the percentage is 15.5.[26] Difference in family size and composition at various family income levels may be a factor.

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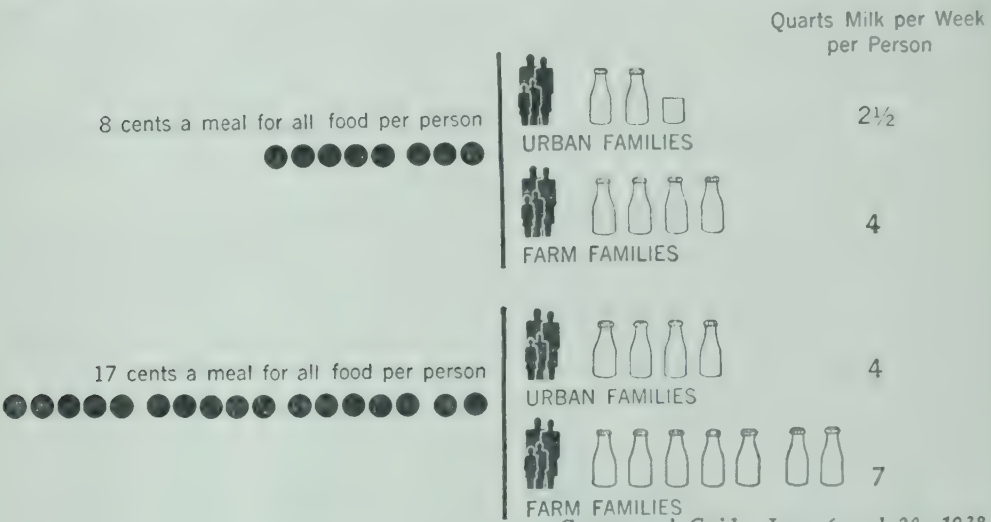
[24] For further studies on egg consumption in relation to income see Pa. Agr. Exp. Sta. Bul. 222; R. I. Agr. Exp. Sta. Bul. 240, 1933; Md. Agr. Exp. Sta. Bul. 430, 1939.

[25] For detailed studies of consumption of dairy products see W. C. Waite and C. B. Howe, *The Consumption of Dairy Products in Six New Jersey Townships,* N. J. Agr. Exp. Sta. Bul. 506, 1930; G. P. Boucher and W. C. Hopper, *An Economic Study of Cheese Consumption in Certain Urban and Rural Districts of Canada,* Dom. Can. Dept. Agr. Pub. 658, Tech. Bul. 22, 1939; C. I. Johnston and W. C. Hopper, *An Economic Study of the Consumption of Milk and Cream in Vancouver,* Dom. Can. Dept. Agr. Pub. 678, Tech. Bul. 25, 1940; F. F. Lininger and H. Metzger, *The Consumption of Dairy Products by 1,370 Families in Philadelphia,* Pa. Agr. Exp. Bul. 245, 1930; H. B. Ellenberger and J. T. Stearns, *The Consumption of Dairy Products in Burlington, Vermont, 1935–36,* Vt. Agr. Exp. Sta. Bul. 433, 1938; W. C. Waite and Rex W. Cox, *A Study of the Consumption of Dairy Products in Minneapolis, 1934,* Minn. Agr. Exp. Sta. Bul. 311, 1934; Consumers' Counsel Division, A.A.A., U. S. Dept. Agr., *A Survey of Milk Consumption in 59 Cities in the United States,* Cons. Counsel Series, Pub. 2. In general these studies confirm the findings on consumption of dairy products as reported in the U. S. Bur. Lab. Stat. Bul. 648, Vol. II.

The consumption of fluid milk increases with increase in food expenditure. This is simply and dramatically shown in Pictogram 2. At both food-expenditure levels, milk consumption by farm families was on a much higher level than that of urban families—on farms high milk consumption is associated with a low price of milk and vice versa. The increase in milk consumption with increase in food expenditure is much the same for each group of families.



Consumers' Guide, June 6 and 20, 1938.

PICTOGRAM 2.

Milk Consumption Is Bigger Where Milk Costs Less.

Comparing consumption of milk by families in cities and on farms. Approximate estimates from data collected by the U. S. Bureau of Home Economics, 1935–1936.

Expenditure for canned and dried milk declines with increase in income. At no income level is its importance in the total milk consumption especially great.

Whole milk and butter have much the same income elasticity.[27] The income elasticities of these products appears to be higher in the Southeast than in the New England and East Central region, for example.[28] In all areas the income elasticity of fluid milk appears to be greater at low than at high incomes.

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[26] It is of interest to note here the findings of a study of food costs in a practice house where adequate diets were planned at several cost levels. In this case the proportion of the food dollar going to milk and cream fell considerably as average cost per person per day rose. See I. H. Gross, "Classified Food Costs in a Practice House," *J. H. Ec.*, Vol. 26, January, 1928, pp. 22–4. See also *J. H. Ec.*, Vol. 26, August to September, 1934, pp. 410–3.

[27] See also the Vt. Agr. Exp. Sta. Bul. 433, *op. cit.*

Buttermilk is important in the Southeast. Its consumption increases only slightly with increase in income, whereas the increase in consumption of fresh milk is much greater.

Expenditures for cheese show much greater income elasticity [29] than that of milk. The rate of change seems to be much the same for most income levels.

Expenditures for cream and ice cream have a relatively high income elasticity. The consumption level of ice cream is very low in the Southeast.

All income groups report paying much the same price per pound or quart for milk, cream, and cheese. The price per quart of ice cream tends, however, to rise with income.

Butter and Margarine [30]

At all income levels and in all regions or groups of cities a large proportion of the families report the use of some butter. Where consumption of butter is lowest, namely, in the Southeast, 54 per cent of the families in the lowest income level reported the use of some butter. In cities of similar size, in the New England and East Central region, the proportion for the same income group is 80 per cent.

An increase in income brings a decline in the consumption of margarine and an increase in the pounds of butter used.[31] Expenditures for margarine have a marked negative income elasticity, and butter consumption has a positive income elasticity. It is, however, less than 1—even in the Southeast where its income elasticity is relatively high. (See Fig. 11.) The income elasticity of all table fats appears to be much the same in the various regions. In general it is somewhat greater at the low than at high income levels.

The increase in the consumption of butter with higher income is due to the greater use of butter as a table fat and also to an increase in its use for other purposes. For example, Waite and Cox [32] in a survey of Minneapolis found all families using some butter. The proportion using some for baking increased from one-third for families with a per capita income under $300 to approximately one-half of those with a per capita income of $900 and over. For the same income groups, 14 per cent and 60 per cent, respectively, were using butter for frying.

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[28] Comparison is here restricted to white families.

[29] See G. P. Boucher and W. C. Hopper, *op. cit.*

[30] Income elasticity of butter is understated owing to a factor not mentioned above; namely, that the consumption of bakery products increases with income, and these products, especially for moderately high income families, contain butter. This fact also has a bearing on shortening other than butter which is purchased.

[31] Relation between butter and margarine consumption, with families classified by weekly food expenditure, is reported by R. S. G. Rutherford, "A Note on Butter and Margarine Consumption in Relation to Income," *The Farm Economist* (Oxford), Vol. 3, January, 1940, pp. 96–8.

The consumption of margarine in relation to butter is higher in the Southeast than in other regions. (See Table 59.)

Table 59. Pounds of Table Fat, Other Than Butter, for Every 100 Pounds of Butter Purchased; 5 Groups of Communities, 1935–1936

(Negro Families Not Included)

Income (Dollars)	New York City and Chicago (Pounds)	2 Large and 5 Middle-Sized Cities in New England and East Central Regions (Pounds)	1 Large and 2 Middle-Sized Cities in Southeast (Pounds)	2 Large and 4 Middle-Sized Cities in West Central and Rocky Mountain Regions (Pounds)	1 Large and 3 Middle-Sized Cities in Pacific Northwest (Pounds)
			May to August		
500– 999	6.35	23.40	77.21	22.71	27.39
1,000–1,499	4.62	18.18	59.98	13.30	15.29
1,500–1,999	3.76	8.08	35.04	4.06	4.80
2,000–2,999	0.51	4.12	22.84	4.25	4.26
3,000–3,999	3.74	3.93	9.96	0.98	3.20
4,000–4,999			6.79	4.67	5.32
5,000 and over			6.20	1.82	
			September to November		
500– 999	5.02	68.98	60.08	32.67	19.27
1,000–1,499	13.64	17.18	34.73	22.71	37.47
1,500–1,999	9.38	15.71	58.98	9.47	1.70
2,000–2,999	0.15	8.55	26.59	6.53	3.06
3,000–3,999	5.44	5.35	26.30	2.16	0.43
4,000–4,999	3.37	0.36	8.76	0.57	1.30
5,000 and over		2.22	9.13	3.59	

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[32] Minn. Agr. Exp. Sta. Bul. 344, 1939, p. 11.

As income rises there is a rise in the price paid per pound of butter. (See Table 60.) For margarine, no such tendency is apparent.

There is some evidence that preference for flavor varies somewhat with income. For example, a Vermont study reports that butter consumers in Burlington, Vermont, generally sought a mild flavor and medium salt content; but strongly flavored, highly salted butter was preferred by low-income housewives because it "went further."[33]

Table 60. Average Price Paid per Pound for Butter and Margarine Purchased, at Various Family Income Levels, in Selected Communities, May to August, 1935–1936

(Negro Families Not Included)

Income (Dollars)	New York City and Chicago (Cents)	2 Large and 5 Middle-Sized Cities in New England and East Central Regions (Cents)	1 Large and 2 Middle-Sized Cities in Southeast (Cents)	2 Large and 4 Middle-Sized Cities in West Central and Rocky Mountain Regions (Cents)	1 Large and 3 Middle-Sized Cities in Pacific Northwest (Cents)
			Butter		
500– 999	28.3	34.6	30.6	33.3	34.4
1,000–1,499	34.9	34.2	32.9	32.9	34.6
1,500–1,999	34.6	35.6	32.6	34.7	35.0
2,000–2,999	35.2	36.5	34.1	35.1	35.3
3,000–3,999	36.1	36.5	33.7	36.7	36.3
4,000–4,999	35.4	35.2	35.6	41.9	35.7
5,000 and over	35.3	36.0	36.4	41.2	37.4
			Margarine		
500– 999	18.5	15.3	18.6	17.0	20.1
1,000–1,499	19.5	15.4	18.8	16.4	18.5
1,500–1,999	16.8	18.0	19.0	19.2	19.1
2,000–2,999	23.3	17.5	19.1	19.0	20.7
3,000–3,999	20.6	14.9	17.8	26.0	19.9
4,000–4,999	13.6		22.0	21.0	19.3
5,000 and over			19.2	21.4	

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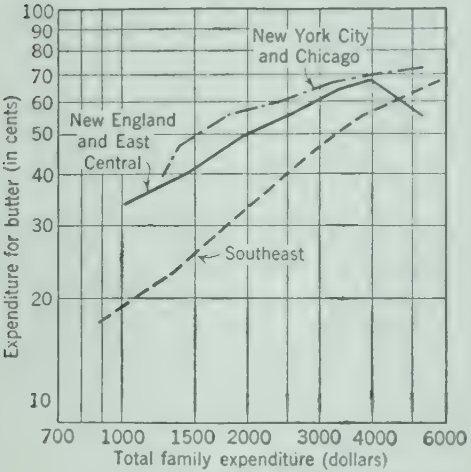
[33] Vt. Agr. Exp. Sta. Bul. 415, p. 9.

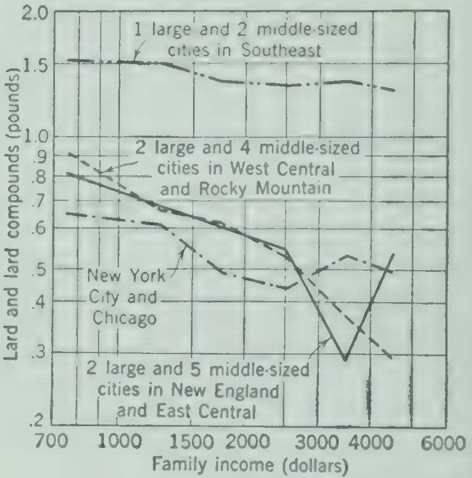
Lard, Lard Compounds, Vegetable Shortening, and Salad Oils and Dressings [34]

As income increases the consumption of lard and lard compounds declines.[35] The rate of decline is least in the Southeast where the level of lard consumption is high. (See Fig. 12.) Some replacement of both lard and lard substitutes with butter, as income rises, is reported by Kozlik.[36] At low income levels, lard and lard substitutes are used to some extent for a bread spread. As income increases, butter replaces them for this use as well as in baking and other cooking.



U. S. Bur. Lab. Stat. Bul. 648, Vol. II, Table 5.

FIG. 11. Weekly expenditure for butter in selected cities, families classified by income. Apart from New York City and Chicago, only large and middle-sized cities are included.



U. S. Bur. Lab. Stat. Bul. 648, Vol. II, Table 5.

FIG. 12. Purchases of lard and lard compounds in selected cities.

The consumption of vegetable shortening rises with income.[37] The pounds of vegetable shortening in relation to the pounds of lard increases with income. The relationship varies greatly, however, with region, the consumption of vegetable shortening being especially high in the Pacific region and low in the Southeast. (See Table 61.)

The price paid for lard and vegetable shortening in most areas increases slightly with income level. In all cases the price paid for vegetable shortening is higher than the price paid for lard. The price differential is least in

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[34] Fats contained in bakery products purchased are not included.

[35] This same tendency is reported by W. C. Waite and R. W. Cox, *A Study of the Consumption of Fats and Oils in Minneapolis, 1938,* Minn. Agr. Exp. Sta. 344, 1939, p. 9.

[36] *Research Handbook of Interrelated Demand,* unpublished manuscript, 1942, pp. 166–7.

[37] The same tendency is reported by Waite and Cox, *op. cit.*

Table 61. Pounds of Vegetable Shortening Used for Every 100 Pounds of Lard and Lard Compounds, May to August, 1935–1936

Income (Dollars)	New York City and Chicago (Pounds)	2 Large and 5 Middle-Sized Cities in New England and East Central Regions (Pounds)	1 Large and 2 Middle-Sized Cities in Southeast (Pounds)	2 Large and 4 Middle-Sized Cities in West Central and Rocky Mountain Regions (Pounds)	1 Large and 3 Middle-Sized Cities in Pacific Northwest (Pounds)
500– 999	7.1	5.5	14.2	11.9	78.3
1,000–1,499	10.4	19.6	15.6	20.5	92.5
1,500–1,999	29.7	31.1	15.9	26.5	156.5
2,000–2,999	36.7	43.7	18.4	39.7	144.8
3,000–3,999	20.5	85.7	18.9	69.5	229.2
4,000–4,999	26.9	38.5	24.2	55.1	183.5
5,000 and over	86.3	17.6	28.8	28.0	969.7

the Southeast where the consumption of lard is relatively high. It also is low in the Pacific where the consumption of vegetable shortening is very high.

Expenditures for salad oils and dressings rise with income at about the same rate as for butter, except in New York City and Chicago where the increase in expenditures for salad oils and dressings is more rapid. Their level of consumption is relatively low in the small cities of the New England and East Central regions. Low expenditure here may be the result of greater home preparation of salad dressings or of low salad consumption because of difference in fresh fruits and vegetables available in the market.

Cereal Products

As income rises the proportion of the total food expenditure going to cereals and cereal products tends to decline. For income groups $500 to $999 and $2,000 to $2,999 in large and middle-sized cities in New England and East Central regions the proportions were 16.2 per cent and 12.1 per cent respectively. Their importance was much the same in the Southeast at the various income levels.

As income increases little change occurs in the pounds of bread purchased.[38]

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[38] It is of interest that in some European countries rye bread has a negative income elasticity and wheat bread a positive income elasticity. See, for example, *Social Work and Legislation in Sweden*, p. 30.

A study made in Minneapolis analyzes baked goods of several types. As income increases, the percentage of families reporting pies and doughnuts purchased decreases.[39] It seems highly probable that the consumption of doughnuts at home declines with increase in income. The higher income is probably associated, however, with greater importance of home baking of pies. In this study expenditures for both cakes and cookies have a positive income elasticity.

With rise in income there is a slight tendency for the price of bread to rise. The rise in the price of cake purchased is much more marked.

Apart from New York City and Chicago there is a tendency for the ratio of white flour to baked goods to be higher for the low- than for the high-income families, although little decline occurs after the $1,500 level is reached. The ratio is especially high in cities of the Southeast and is higher in the small than in the large cities. (See Chapter 9.)

The consumption of cornmeal and hominy grits is very high in cities in the Southeast in contrast with the other regions. In this region it has a negative income elasticity. The consumption of these products in areas where they are relatively unimportant shows no consistent relation to income change. In such cases cornmeal is probably used chiefly for variety in the diet.

Data from the Consumer Purchases Study indicate that macaroni and spaghetti have a negative income elasticity. This may, however, be due to the concentration in the lower income groups of Italian and other families with a high preference for these foods. The income elasticity may be positive among these families.

The consumption of rolled oats and wheat cereals at the lower levels of income has a positive income elasticity. At higher income levels it shows a fairly consistent negative income elasticity in the various regions. Ready-to-eat cereals on the other hand show a positive income elasticity, in both number of packages and the expenditure.

Fruits

As income rises fruits take an increasing proportion of the food dollar. At low income levels fruits are less important than vegetables.

Fresh fruits have a greater income elasticity than fresh vegetables and canned fruits a greater income elasticity than canned vegetables. Among canned fruits the greatest increase in consumption with rise in income occurs in juices.

The bulk of the fresh fruit dollar goes to oranges, apples, and bananas. Among these oranges rank first. Except in the Southeast oranges claim from 25 to 40 per cent of the expenditures going to fresh fruit, with their importance among the fruits rising somewhat with increase in income, while apples and bananas decrease in importance.[40] (See Table 62.)

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[39] *A Study of the Consumption of Fats and Oils in Minneapolis, 1938, op. cit.*

During the May-to-August season, as income rises, grapefruit and peaches increase in importance. The relative importance of the various fruits, during the September-to-November period, shifts little with income since the variety of fruit is less.

Table 62. Average Ranking of Expenditures for Specified Fresh Fruits, Within Selected Income Levels, May to August, 1935–1936 *

Fruits	Income Levels			
	$500–$999	$1,500–$1,999	$3,000–$3,999	$5,000 and over
Oranges	1.8	1.3	1.0	1.0
Bananas	2.0	2.7	4.3	5.2
Apples	4.1	5.8	6.9	6.6
Melons	4.4	4.0	3.5	3.2
Berries	4.8	3.5	3.5	4.0
Lemons	5.0	4.6	4.0	4.2
Grapefruit	7.0	7.2	6.5	5.6
Peaches	7.4	6.9	6.3	6.2
Pears	8.5	9.0	9.0	9.0

* For the first three income groups given here the rankings are the average for the 6 tabulation areas. For the highest income category the 9 small cities in the New England and East Central regions are omitted. For New York City in this case the income class is $5,000–$7,499.

At the various income levels fresh fruits appear to have a smaller range in price per unit than occurred in the case of fresh meats.

Vegetables

Expenditures for vegetables amount to one-eighth to one-ninth of the total food dollar. The proportion is affected little by income level.

Most studies show that the per capita consumption of potatoes either remains much the same for the various income levels or falls slightly with increase in income. An extensive study in Cleveland and Rochester reports as shown in Table 63.[41]

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[40] For a detailed study of the consumption of citrous fruits see Consumers' Counsel Division, A.A.A., U. S. Dept. Agr., *Consumption of Citrus Fruits in Baltimore and St. Louis,* Cons. Counsel Series Pub. 6, 1938. See also M. E. Cravens, "The Effects of Consumer Income on Volume of Sales of Apples and Other Fruits," *Farm Economics* (N. Y. Coll. Agr.), November, 1940, pp. 3028–9, reports the average sale per customer of fruits during December, 1938, in 99 grocery stores, classified by income area. The average sale of grapefruit and oranges declined with income. Sales of apples and bananas were much the same in the various districts.

As income rises there is a marked increase in the consumption of canned tomato juice. Canned corn becomes relatively less important and canned peas more important as income rises.

Table 63. Potato Consumption Affected by Income; per Capita Consumption per Year (Pounds) 1935–1936 to 1937–1938

FAMILY INCOME	CLEVELAND	ROCHESTER
Less than $750	158	198
$ 750–$1,499	151	176
$1,500–$2,249	145	165
$2,250–$2,999	133	163
$3,000 and more	116	129
All families	144	162
Number of families	2,052	1,036

Among the fresh vegetables tomatoes occupy a position of importance at all income levels. Among the fresh vegetables onions and cabbage decline in importance as income rises, and peas, asparagus, and celery increase in importance.[42] (See Table 64.)

In some cities canned vegetables have a very low income elasticity. There is a tendency in all regions except the Southeast for the ratio of expenditures for canned vegetables to fresh vegetables to decline as income increases. In the Southeast for both white and Negro families the level of consumption of canned vegetables is very low, and the ratio of expenditures for canned vegetables to fresh vegetables rises with income.

[41] A. S. Hotchkiss, *Consumer Buying of Potatoes and Store Offerings,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 764, 1941, p. 6. H. H. Bakken, *Consumer Preferences for Potatoes,* Wis. Agr. Exp. Sta. Res. Bul. 124, 1934, reports a slightly higher consumption for families with incomes from $1,500 to $3,500 than for those with incomes under $1,500. With further rise in income potato consumption, however, declined.

[42] Marked differences occur by regions in the relative importance of various vegetables. In some regions a high ranking for a vegetable is accompanied by an unusually low price. This occurs, for example, with carrots, which rank much above average importance in cities of the Pacific Northwest and much below the average in the cities in the Southeast. The average price paid per bunch by families in these regions with incomes from $3,000 to $3,999 was 3.7 cents in the Pacific Northwest and 6.9 cents in the Southeast. In some cases, however, a ranking much above the average for all income groups in a region is accompanied by a relatively high price. For example, snap beans in the Southeast rank above the average in importance, and the price reported is about 9 cents a pound; whereas in the Pacific Northwest snap beans rank much below the average for various areas studied, and the average price per pound is about 6 cents. This difference would suggest that preference for snap beans in the Southeast is relatively high.

Table 64. Average Ranking of Expenditure for Specified Fresh Vegetables, Within Selected Income Levels, May to August, 1935–1936 *

Vegetable	Income (Dollars)			
	$500–$999	$1,500–$1,999	$3,000–$3,999	$5,000 and over †
Tomatoes	1.3	1.0	1.0	1.0
Lettuce	2.5	2.2	2.4	2.5
Onions	3.9	5.3	7.4	8.2
Cabbage	5.0	6.8	8.5	9.0
Snap beans	5.4	5.1	5.1	5.2
Carrots	5.6	5.3	5.8	6.2
Peas	8.0	6.2	4.0	3.7
Asparagus	8.2	7.7	5.9	5.6
Celery	8.5	6.9	5.4	4.6
Spinach	9.0	9.8	10.3	9.4
Beets	9.5	10.3	10.2	10.6
Turnips	11.2	11.5	12.0	12.0

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II.

† For all but this income group the six tabulation areas are included. For the small cities in New England and East Central region the top income group is $3,000 and over.

Sugar

Expenditure per family for sugar shows a slight, irregular tendency to rise with increased income; the price per pound also increases slightly.

With increase in income there is, however, a considerable increase in the purchase of many processed foods in which sugar is an important ingredient. Some indication of the relative consumption of sugar by income groups is indicated in Fig. 13.[43]

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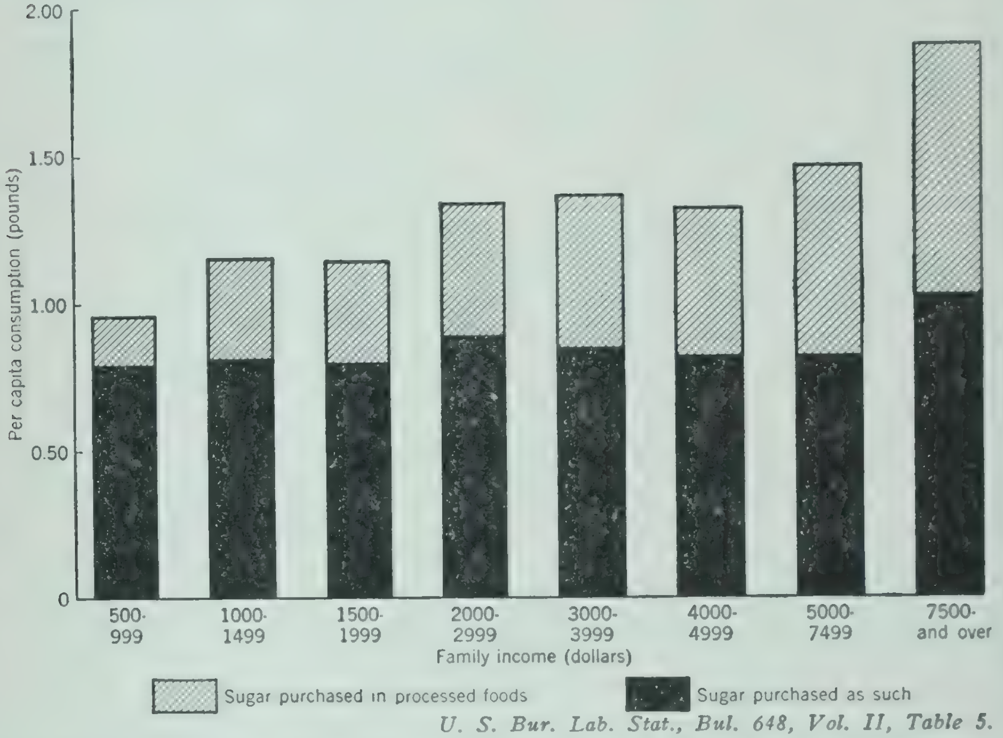
[43] The processed foods included in Fig. 13 and the basis of determining sugar content are as follows:

Candy	75% of weight is sugar.
Canned fruits	30% of the weight is sugar.
Soft drinks and alcoholic beverages	Data were provided only for average expenditure—it was assumed that 5 cents would buy the equivalent of one bottle of Coca-Cola and that it has 14.4 grams of sugar. (This figure was taken from G. Thompson, *Table of Proximate Composition of Some American Foods* (mimeo.), Ia. State Coll.)
Ice cream	It was assumed that there were 18.2 grams of sugar per ½ cup or 0.32 pound per

Miscellaneous Foods

At the lowest income level beverages such as tea, coffee, and cocoa take from 3 to 4 per cent of the total food dollar. Their importance shows a slight tendency to decline with rise in income. Of these beverages, at all income levels, coffee is the most important item. With increase in income, however, consumption of tea increases more than that of coffee.[44]



U. S. Bur. Lab. Stat., Bul. 648, Vol. II, Table 5.

FIG. 13. Per capita sugar consumption including that purchased as sugar and that used in selected processed foods; families in New York City and Chicago, 1935–1936. For families in the North and West the consumption of sugar is at a higher level but follows much the same pattern.

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	quart. (This was based on G. Thompson, *op. cit.*)
Cake	It was assumed that 30% of the weight of the cake was sugar. In most cases this would make no allowance for icing.
Jams, jellies, and preserves	75% sugar by weight.
Packaged desserts	95% of the net weight of the package is sugar.

The author is indebted to Dr. Margaret A. Ohlson, of Iowa State College, for advice in making these estimates.

[44] In England, on the other hand, ounces of tea consumed change little with income, while coffee consumption shows a marked tendency to increase with increase in income. See *The People's Food, op. cit.*

The consumption of soft drinks and alcoholic beverages rises very sharply with income. In income elasticity they are in much the same class as ice cream and sirloin steak.

In expenditure for candy there is marked rise with income; also in price per pound of candy as well as in pounds of candy purchased per capita.

Foods Arranged According to Relative Income Elasticity[45]

I. Those with Negative Income Elasticity

Chuck roast
Ground beef
Boiling plate
Lard
Salt pork
Flour *
White bread
Onions
Cornmeal and hominy grits (in the Southeast)
Macaroni and spaghetti
Dried vegetables
Dried legumes
Evaporated milk
Margarine
Peanut butter

II. Those with Zero or Only Slightly Positive Elasticity

Potatoes
Sugar *
Cabbage
Fresh pork
Vegetable shortening

III. Those More Than Slightly Elastic but with Income Elasticity of Less Than 1.0

Butter
Milk
Eggs
All meat
Beef
Cured ham and bacon
Veal
Ready-to-eat cereals
Cake
Fresh and canned fruits and vegetables
Dried fruits
Nuts
Tea and coffee
Salad dressings and oils
Vegetable shortening
Canned soups

IV. Those with Income Elasticity Greater Than 1.0

Ice cream
Cream
Sirloin steak
Mutton and lamb
Canned fruit and tomato juice
Fresh grapefruit
Poultry
Soft drinks and alcoholic beverages
Fresh and canned asparagus

* Does not include amounts in processed foods purchased.

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[45] This is a general summary. No attempt is made to qualify this general picture by pointing out variations in income elasticity with income levels and differences by regions. The classification is made for the most part without benefit of mathematical measurement apart from inspection of data plotted on double logarithmic scales.

Further Study of Food Consumption and Income

The study of the relationship of income to food consumption has only just begun. Data now available, giving a cross section of consumption during the years 1934 to 1937, are far from being fully explored. Historical data to shown adjustments of individual families over a period of time are almost altogether lacking. The change in other factors which influence food consumption, along with changes in income, increases the complexity of the investigation. The shifts in relative income that occur during wartime, inflation and policy questions that bear on the food stamp plan, and relief allowances, for example, again and again raise questions concerning the relationship of income to the consumption of various foods.

16

Family Size and Composition and Seasonal Change

Society is organized in family units. Our awareness of food consumption will thus be intensified by a description of consumption with families, classified by size and composition. In general the larger the family the lower is the per capita income. Hence variations in consumption of families of different sizes is in large part the effect of income per capita or per expenditure unit. In addition, the age and sex of members affect food preference.

Income Distribution by Size of Family

The National Resources Committee reports income by family size. Four-and-five-person families have less than half the per capita income of two-person families. The very low income of large families, shown in Fig. 14, is partly accounted for by the fact that farm and Southern families are larger than average in size and smaller than average in income.[1] For many communities the difference in economic level of families of various sizes would be somewhat less striking. The association of large families, among wage-earners and low-salaried workers, with low economic level is very clearly shown in Table 65.

All studies show that the average economic level of large families is much lower than that of small families; and in these large families a large proportion of the children are concentrated.[2] So far as income has a bearing on adequacy of diet, this condition would lead one to suspect that on the whole the children of the nation are less well fed than the adults.

With large families, in general less well fed than the small, and with relief policies in most communities favoring aid to families with children, it is not surprising that families on relief contain a high proportion of chil-

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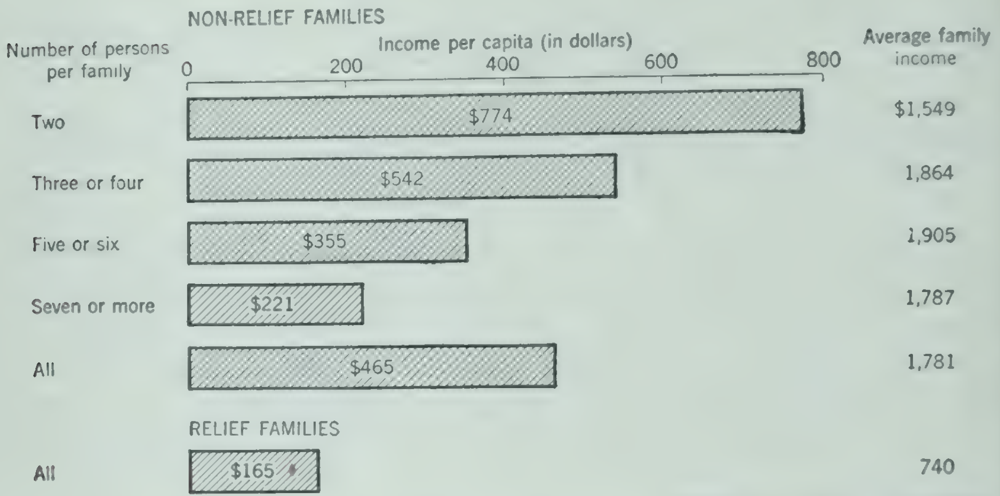
[1] In 1930 the percentage of families with three or more children under 10 years of age, in selected areas, was as follows: New England, 9.1 per cent; South Atlantic, 15.2 per cent; East South Central, 15.0 per cent; Mountain, 11.6 per cent; Pacific, 6.5 per cent.

[2] The 1930 Census of the United States reports that 10 per cent of the families had three or more children under 10 years old; whereas 46 per cent of the children under 10 were concentrated in such families.



National Resources Committee
Consumer Incomes in the United States, 1935–1936, p. 21.

FIG. 14. Average per capita income for families of various sizes in the United States, 1935–1936.

Table 65. Average Size of Family by Economic Level; Families of Wage-Earners and Clerical Workers, in Selected Cities, 1934–1936 *

City	Average Size of Family in Persons When Annual Expenditure per Expenditure Unit Is	
	$200–$300	$600–$700
Los Angeles	4.80	2.73
San Francisco and Oakland	4.25	2.73
Seattle	5.50	2.75
New York	5.76	3.09
Boston	5.80	2.75
Buffalo	5.37	2.88
Philadelphia	5.64	3.06
Pittsburgh	5.83	2.82
Kansas City	4.71	2.58
Minneapolis–St. Paul	5.36	2.95

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* Bulletins of U. S. Bur. Lab. Stat., reporting money disbursements of wage-earners and clerical workers, 1934–1936. Only white families are reported here.

dren. In October, 1933, Federal Emergency Relief Administration, for example, reported that 42 per cent of the persons receiving relief were under 16 years of age.[3] The 1930 Census reported 31 per cent of the total population in this age group.

Food Expenditure by Family Type

The larger the family the higher the percentage of total expenditure that goes to food. This fact is shown clearly in Table 66.

*Table 66. Percentage of Total Money Expenditures Devoted to Food, by Family Type **
(Between the Horizontal Lines Food Takes from One-Quarter to Two-Fifths of Total Family Expenditure)

Income Class	Family Type						
	I	II	III	IV	V	VI	VII
Number of persons	*2*	*3*	*4*	*3 to 4*	*5 to 6*	*5 to 6*	*7 to 8*
$ 750–$ 999	37.7	40.2	44.2	39.6	39.0	39.8	43.8
$1,000–$1,249	36.1	38.1	42.8	38.6	49.0	42.6	38.8
$1,250–$1,499	36.7	37.1	39.9	40.0	44.1	43.3	47.7
$1,500–$1,749	33.6	36.5	38.7	34.2	42.7	42.7	40.7
$1,750–$1,999	30.9	33.6	36.3	33.8	39.0	38.5	41.9
$2,000–$2,240	26.4	32.0	36.1	35.2	38.7	36.1	41.2
$2,250–$2,499	28.8	34.2	33.9	36.8	37.6	37.0	42.1
$2,500–$2,999	27.1	29.9	30.9	32.7	35.7	34.7	39.4
$3,000–$3,499	27.0	28.4	32.5	32.6	35.2	36.5	37.6
$3,500–$3,999	26.7	27.1	30.0	31.2	33.9	31.0	35.2
$4,000–$4,999	22.4	27.8	27.5	28.0	34.2	28.5	35.4
$5,000–$7,499	22.0	21.3	24.3	25.4	28.1	28.1	28.5
$7,500–$9,999	18.8	16.4	20.4	20.8	24.3	26.9	26.8

* U. S. Bur. Lab. Stat. Bul. 642, Vol. II, p. 29.

In spite of the rise in the percentage of the income going to food, increase in family size leads, however, to a fall in food expenditure per person or per food consumption unit. For example, among Chicago families with an annual income from $750–$999 per capita, those consisting of 2 adults spent 16.1 cents per meal, whereas those with 3 or more children under 16 years spent 8.4 cents. Similar differences exist for other income levels.[4] (See Table 67.)

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[3] See I. S. Falk and B. S. Sanders, "The Economic Status of Urban Families and Children," *U. S. Soc. Sec. Bul. 5*, Vol. 2, 1939, pp. 25–34.

Families of two adults and of two adults and one child under 16 years spend a relatively large percentage of the food money for food eaten outside the home.

Table 67. Average Money Expenditure (Cents) per Meal per Food Expenditure Unit, Families Classified by Income and Type, Chicago, 1935–1936 *

Family Income	Families of 2 Adults			
	No children	1 child under 16	2 children under 16	3 or more children under 16
	cents per meal	*cents per meal*	*cents per meal*	*cents per meal*
\$ 750–\$ 999	16.1	13.3	11.3	8.4
\$1,500–\$1,749	23.9	19.2	15.6	15.9
\$2,500–\$2,999	28.7	23.6	20.6	15.8
\$4,000–\$4,999	34.2	30.4	24.4	19.6

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II, pp. 80–1

Family Type and the Consumption of Individual Foods

Age composition of families affects the division of the food dollar among different foods. Families with two adults and one or more children, in contrast with those of two adults only, spend a smaller proportion of their food dollar for meat, for example, and a larger proportion for milk and grain products, cereals and baked goods. (See Table 68.)

The relatively smaller proportion of the food dollar of families with children that goes to meat as well as vegetables, fruits, and nuts is due in part at least to the fact that such families in contrast with two-member families have relatively low per capita income. The relatively high proportion of the dollar going to cereals and baked goods for the larger families is also in part at least the result of this income difference. This income difference would not, however, account for the high proportion of the food dollar going to milk.

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[4] Using data reported for Consumer Purchases Study, the expenditure elasticity of food (that is, the rate of change in food expenditure in relation to the rate of change in total expenditure) was determined for separate family types. In New York City expenditure elasticity increased with size of family. In the other four cities for which data were analyzed no consistent relationship appeared.

Stiebeling and Phipard [5] report the per capita consumption of selected foods, with families classified by type and per capita expenditure for food.

Table 68. Percentage of Food Dollar Going to Specified Foods to Be Eaten at Home, Family Types I † and II ‡ and III ‡*

Family Income	Meat		Fluid Milk		Vegetables, Fruits and Nuts		Baked Goods		Cereals	
	I	II and III	I	II and III	I	II and III	I	II and III	I	II and III
New England and East Central (2 large and 5 middle-sized cities)										
$ 500–$ 999	24.7	22.2	8.9	10.9	21.7	21.0	11.6	12.4	3.0	3.7
$1,000–$1,499	26.3	24.2	8.5	11.5	23.0	22.3	10.0	10.8	2.6	3.1
$1,500–$1,999	27.6	26.7	8.0	12.6	23.0	22.3	9.1	9.4	2.0	2.8
$2,000–$2,999	27.2	23.3	8.1	12.1	24.3	23.6	8.1	9.0	1.7	2.5
$3,000–$3,999	28.1	25.2	8.1	11.9	25.1	23.7	7.7	7.7	1.9	2.1
$4,000–$4,999	27.1	30.0	9.2	10.0	25.9	20.5	6.2	6.8	1.5	2.4
Southeast (1 large and 2 middle-sized cities)										
$ 500–$ 999	22.4	20.8	5.1	9.1	23.5	21.0	8.2	7.7	7.5	8.3
$1,000–$1,499	22.8	19.3	9.6	11.7	21.6	21.9	9.3	8.9	5.3	6.4
$1,500–$1,999	25.8	22.2	8.0	12.2	22.6	22.3	7.5	8.4	4.7	5.4
$2,000–$2,999	25.0	22.9	9.9	12.3	23.1	24.0	7.6	7.8	4.1	4.8
$3,000–$3,999	25.6	25.3	9.9	11.8	22.5	22.3	7.5	6.4	3.7	4.2
$4,000–$4,999	27.8	24.7	7.3	11.6	22.4	22.9	6.5	7.5	2.1	4.7

* U. S. Bur. Lab. Stat. Bul. 648, Vol. II, pp. 144, 148, 152, 156.

† Family type I: 2 adults.

‡ Family types II and III: 2 adults, 1 or 2 children under 16 years.

In five out of the six groups reported, at a given food expenditure level, the per capita consumption of milk was higher for families having two adults and children under 16 years of age than it was for families of two adults; and in four out of the six groups reported the per capita consumption of eggs and dried legumes and nuts was also higher. In no case was the per capita consumption of meat, fats, or tomatoes and citrous fruits as high for families with 2 adults and children under 16 years of age as for families of two adults only.

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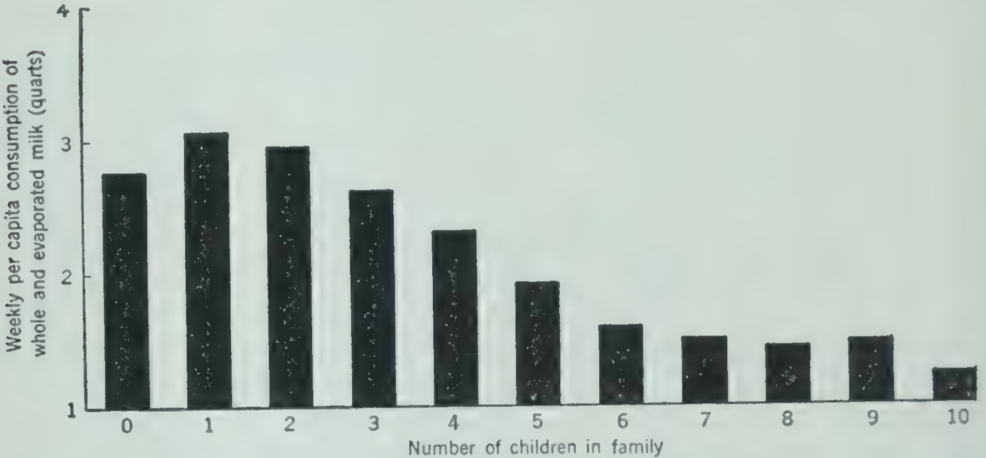
[5] U. S. Dept. Agr. Cir. 507, p. 37.

Milk

Numerous studies of milk consumption have been made. The low per capita consumption of large families is strikingly brought out in a study in 59 cities in the United States. (See Table 69 and Fig. 15.) In spite of the fact that the presence of an additional child causes a family to increase expenditures for food and to increase the proportion of the food money going to milk, still in general it is true that the young children are concentrated in the families where the consumption of milk is relatively low.



Cons. Counsel Series, Pub. 2, op. cit., p. 16.

FIG. 15. Weekly per capita consumption of fresh and evaporated whole milk of 9,728 families of 2 adults and a specified number of children.

Another study reports individual milk consumption by age of groups: 88 per cent of the children 1 to 5 years of age and 40 per cent of the persons 16 years and over were reported drinking milk regularly. The average consumption of those reported drinking milk also fell with increase in age.[6] (See Table 70.)

Low income affects the milk-drinking habits of adults more than of children. In Minneapolis, for example, 22 per cent of the adults and 80 per cent of the children in families with per capita incomes under $300 report the drinking of milk; whereas for families with per capita income

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[6] This shift in milk consumption with age of children probably accounts for the fact that families in Minneapolis, Minnesota, with per capita income below $300 and having 2 adults and 4 or 5 children, had a lower per capita milk consumption than did those of 2 adults and 2 or 3 children. See W. C. Waite and R. W. Cox, *A Study of the Consumption of Dairy Products in Minneapolis*, 1934, Minn. Agr. Exp. Sta. Bul. 311, p. 19.

Table 69. Average Size of Family, Number of Children and Age of Children, As Reported for 28,966 Families; Families Classified According to Weekly per Capita Consumption of Whole and Evaporated Milk *

Weekly per Capita Consumption of Whole and Evaporated Milk (Quarts)	Average Number of Persons per Family	Average Number of Children in Family		
		Under 5 years of age	5 to 16 years of age	Total
0 –0.9	6.42	0.59	2.83	3.43
1.0–1.9	5.98	.45	2.50	2.95
2.0–2.9	5.23	.38	2.13	2.51
3.0–3.9	4.80	.35	1.94	2.29
4.0–4.9	4.56	.31	1.92	2.23
5.0–5.9	4.34	.28	1.86	2.14
6.0–6.9	4.21	.25	1.78	2.03
7.0–7.9	3.68	.11	1.64	1.75
8.0–8.9	4.37	.26	1.74	2.00
9.0–9.9	4.11	.16	1.79	1.95
10.0 and above	3.67	.11	1.22	1.33
All families	5.40	0.41	2.25	2.66

* Cons. Counsel Series, *op. cit.*, p. 12.

Table 70. Frequency of Milk Drinking by Age Groups, Burlington, Vt., 1935–1936 *

Age Group	Number in Group	Percentage Drinking Milk			Average Daily Consumption of Those Drinking Milk (Pints)
		Regularly	Irregularly	Never	
Under 1 year	300	68.3		31.7	1.64
1– 5 years	1,378	87.7	4.8	7.6	1.33
5–10 years	1,569	80.9	5.8	13.3	1.26
10–16 years	1,590	73.2	7.3	19.5	1.20
Over 16 years	10,421	40.4	10.7	48.9	0.91
Total	15,258	52.8	9.1	38.1	1.08

* H. B. Ellenberger and J. T. Stearns, *The Consumption of Dairy Products in Burlington, Vt., 1935–1936*, Vt. Agr. Exp. Sta. Bul. 443, p. 7. See also C. I. Johnston and W. C. Hopper, *An Economic Study of the Consumption of Milk and Cream in Vancouver, Dom. Can.*, Dept. Agr. Tech. Bul. 25, 1940, pp. 22–4; F. F. Lininger and H. Metzger, *The Consumption of Dairy Products by 1,370 Families in Philadelphia*, Pa. Agr. Exp. Sta. Bul. 245, p. 10; and L. D. H. Weld, *Factors Affecting the Sale of Milk*, mimeo. release, National Dairy Council, December, 1941.

Table 71. Influence of Income on the Proportion of Adults and Children Drinking Milk, Minneapolis, 1934 *

Per Capita Income	Percentage of Adults and Children Drinking Milk	
	Adults	Children
Under $300	21.7	80.3
$300–599	29.0	90.4
600–899	34.9	96.3
900 and above	40.3	88.2
All families	27.6	84.4

* Minn. Agr. Exp. Sta. Bul. 311, p. 19. See also F. F. Lininger and H. Metzger, *op. cit.*, p. 5, and S. Egbert, "Significant Aspects of a Recent Official Survey Concerning the Household Use of Milk in Philadelphia," *Am. J. Pub. Health*, Vol. 25, July, 1935, pp. 789–95.

of $900 and more the percentages were 40 and 88, respectively. (See Table 71.)

Fats

In contrast with milk, per capita butter consumption at a given level of per capita income tends to be high among families of adults and lowers with the increasing importance of children in the family.[7] Lard consumption is affected in the same way, whereas the consumption of peanut butter increases with number of children.[8]

Meat

The smaller per capita consumption of meat with the larger number of small children is indicated in the study by Waite and Cox in Minneapolis. (See Table 72.) Among these families the increase in the number of children reduces the consumption of pork more than the consumption of beef.

Fruits and Vegetables

The consumption of fruit and vegetables by type of family has been studied to a limited extent. Since their consumption increases with income, it is not surprising that the per capita fruit consumption is much lower among large than among small families. One report, for example, gives the

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[7] See, for example, Minn. Agr. Exp. Sta. Bul. 311, p. 22, and Bul. 344, p. 13.

[8] See Minn. Agr. Exp. Sta. Bul. 344, p. 13.

Table 72. Per Capita Consumption of Meat, with Families Classified by Number of Children and Age; Family Income between $300 and $599 per Capita, Minneapolis, 1934 *

Number of Children	Ages of Children			
	0–4 years	5–9 years	10–14 years	15–18 years
	pounds weekly	*pounds weekly*	*pounds weekly*	*pounds weekly*
1	2.86	2.75	3.11	3.04
2	2.37	2.31	2.46	2.88
3	1.90	2.45	2.54	3.96

* W. C. Waite and R. W. Cox, *A Study of the Consumption af Meats, in Minneapolis, 1934*, Minn. Agr. Exp. Sta. Bul. 321, 1935, p. 25. Each family had two adults.

weekly per capita consumption of oranges in St. Louis for two-person households as 4.6 oranges and for seven-person households 2.4 oranges. An increase in the number of children is shown to lower the per capita consumption of grapefruit and canned tomato juice more than oranges.

Sex Differences in Food Choice

A report on the foods selected in a college cafeteria shows some striking differences in the proportion of trays having certain foods. For example, 55 per cent of the men's and only 18 per cent of the women's trays had milk. The men also selected cooked cereal, meat and meat substitutes, potatoes, and other vegetables with much greater frequency than did the women. The women showed especially strong preference for raw and cooked fruit, raw vegetables, and salads.[9] (See Table 73.) Such differences are in part the result of difference in energy needs and in a desire to maintain or to achieve a slender figure. A study among farm families in New York State reports that homemakers in contrast with their husbands were relatively low on consumption of milk, eggs, potatoes, coffee, tea, cakes, and sugar. Average milk consumption declines with age, and the decline is greater for females than for males.[10]

A similar difference between men and women in milk drinking was revealed by a survey that included 1,500 families, representing a cross

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[9] Similar preference among women was shown in a study by R. Wheeler and R. Malloy, "A Study of Foods Freely Selected by College Cooperative Housekeeping Group," *J. Am. Diet. Ass.*, Vol. 10, 1935, pp. 453–8.

[10] N. B. Morey, *A Study of the Food Habits and Health of Farm Families in Tompkins County, New York*, Cornell (N. Y.) Agr. Exp. Sta. Bul. 563, 1933. See also *Am. J. Pub. Health*, Vol. 25, 1935, p. 792.

Table 73. Foods Selected by Students in a College Cafeteria During Two 10-Day Periods, as Observed from 1,665 Trays *

Food	Percentage of Trays Carrying Specified Food for All Meals					
	Winter		Spring		Both periods	
	Men	Women	Men	Women	Men	Women
Milk †	60	18	48	17	55	18
Coffee or tea †	35	31	27	28	31	30
Fruit—raw and cooked ‡	46	52	39	70	42	62
Cereal ‡	53	18	30	8	39	13
Breads (including sandwiches) †	82	65	73	85	78	71
Dark breads †	20	11	18	13	19	12
Meat or meat substitutes §	76	55	73	63	75	59
Potatoes §	67	37	46	24	58	32
Other cooked vegetables §	45	39	59	37	52	38
Raw vegetables §	4	20	7	15	6	18
Salads §	9	42	18	43	14	43
Desserts §	59	66	60	71	59	68

* E. Latzke, "A Study of Diets Selected by College Students from a College Cafeteria," *J. H. Ec.*, Vol. 26, February, 1934, pp. 107–14.

† All meals. ‡ Breakfast only. § Lunch and dinner.

section of all income levels and living in 5 large cities in the North Central region: 44 per cent of the men and 49 per cent of the women reported drinking no milk. (See L. D. H. Weld's *Factors Affecting the Sale of Milk,* mimeographed release of the National Dairy Council, December, 1941.)

Some difference in flavor preference has been shown between men and women. For example, a study of cheese preferences in Wisconsin indicated that women showed a much stronger preference for processed cheese than did men.[11] A similar preference is indicated in a cheese study in Canadian cities. (See Table 74.) The relatively greater preference for mild cheese on the part of women, in contrast with men, is indicated by the higher index for women. Some ice cream dealers have the opinion that women favor delicate flavors more than men, although probably wide differences exist among each sex.

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[11] A. Hobson and M. A. Schaars, *Consumer Preferences for Cheese,* Wis. Agr. Exp. Sta. Res. Bul. 128, 1935, pp. 20–2.

Table 74. Index of Preference for Mild Cheddar Cheese and for Processed Cheese in Contrast with Strong Cheddar Cheese, in Three Canadian Cities, 1935 *

City	Mild Cheddar Cheese		Processed Cheese	
	Women	Men	Women	Men
Oshawa, Ont.	152	95	134	65
Quebec, Que.	123	118	536	363
Calgary, Alta.	177	151	261	154

* G. P. Boucher and W. C. Hopper, *An Economic Study of Cheese Consumption in Certain Urban and Rural Districts of Canada*, Dept. Agr. Pub. 658, Tech. Bul. 22, 1939, p. 23. The number giving "first choice" to mild Cheddar and to processed cheese was divided by the number giving "first choice" to strong Cheddar.

> The food we eat, the smoke we draw into our lungs, the odors we breathe all have a tremendous effect upon our sense of taste. . . . Heavy smokers or men working in factories where the oily odors of machines permeate their systems usually prefer pronounced flavors in their ice cream, while women prefer more delicate flavors.[12]

Systematic studies on such matters appear to be very rare.

Customs and conventions which differentiate the sexes undoubtedly lead to difference in food choice. Women for the most part plan the family meals. One cannot but wonder what bearing this fact has on the long-time trend in food choice.

Change with Season

Seasonal change in food consumption is largely affected by change in relative food prices and in climate. The latter affects not only the type of food that people are likely to enjoy but also its method of preparation. Rhoades, for example, reports:[13]

> The demand for beef in the summer time is generally confined to steaks for they may be prepared rapidly without the necessity of heating the kitchen or keeping the housewife indoors for a long period.

Seasonal shifts in the consumption of many dairy products are due largely to changes in preference. Buttermilk and ice cream are the two most affected. The high point in the consumption of each is May through August. Fresh milk, sold in public eating places along with buttermilk, increases as people reduce consumption of hot beverages. At the same time the sale of light cream, largely consumed in coffee, declines. The sale of heavy cream is closely related to the sale of fresh fruit, especially strawberries.[14] Butter consumption also increases in the summer. A fall in the price of butter is probably a factor because the increase in butter consumed is accompanied by a decrease in the consumption of margarine.[15] The consumption of flour and bakery goods and meat are relatively low in summer and high in winter.

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[12] *Ice Cream Rev.*, March, 1939, pp. 40–1.

[13] *Merchandising of Packing House Products*, 1929, pp. 13–4.

The Consumer Purchase's Study secured records from families during two periods—May through August, and September through November. The data have been partially explored for seasonal difference by comparing food consumption at the given income levels of the different group of cities studied. Beef and fresh-pork consumption are definitely higher in the September-through-November period, whereas that of ham is lower. Ham appears to be a "summer meat." Little difference is apparent for poultry. Egg consumption appears somewhat lower in the later period, and potatoes are definitely higher. The seasonal shifts in fruits and vegetables are apparent: Lettuce, celery, tomatoes, lemons are, for example, high in the May-to-August period; and cabbage, turnips, and apples high during September through November. Ready-to-eat cereals and tea are less important as the weather cools.

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[14] See, for example, H. A. Ross, *Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York,* U. S. Dept. Agr. Tech. Bul. 73, 1928, pp. 22–30.

[15] See S. Kuznets, *Seasonal Variations in Trade and Industry,* Nat. Bur. Econ. Res., Pub. 22, 1933, pp. 379–82.

17

Adequacy of Diets of American Families

MR. M. L. WILSON, U. S. Department of Agriculture, recently stated:[1]

> Scientific knowledge is rapidly accumulating as to the definite status of people as a whole and of different areas and different sections of the country, and different levels of income and different groups of people. There is scientific basis for the estimate so commonly used that 45 million people—more than one-third of our people—are improperly nourished.

Wilder, chairman of the Committee on Food and Nutrition of the National Research Council, says:[2]

> Actually our food ways for some sixty years have been worse than at any previous time in history. They are worse today than they were in 1914, for the reason that more years have passed since certain detrimental changes were made, some sixty years ago, in the food habits of our population.

Rejections among draftees have been many: 40 per cent of the first million men were rejected as unfit. About one-third of them were suffering from disabilities directly or indirectly traceable to improper nutrition.

Ways of Evaluating Adequacy of Diet

Adequacy of diet in the last analysis depends on how well the food consumed actually nourishes individuals. Methods of measuring nutritional health are, however, still in the process of being perfected, although some investigations have been made with techniques so far developed. In determining the probable status of nutrition we are, however, largely dependent upon measures other than nutritional health. The most important of these is a comparison of nutrients in the food purchased with established standards of nutrients essential to an adequate diet. Dietary standards have been evolved by experiments, for example, on animals, rats, guinea pigs, and dogs, and by some human investigation,[3] including a limited amount of controlled experimentation.

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[1] Address before the American Dietetics Association, New York City, October 21, 1940.

[2] "Nutrition in the United States," *Ann. Internal Med.*, June, 1941.

The consumption of single foods or groups of foods are taken at times as an indicator of dietary adequacy. This method has a considerable element of validity if the food customs are such that the omission or low consumption of the food in question is likely to be associated with dietary deficiencies and if high consumption of it gives assurance that important elements, otherwise likely to be lacking, are provided. Since milk is an important source of calcium, an element very often reported lacking in the American diet, the amount consumed is, for example, often looked upon by some as a measure of nutritional adequacy.[4] It must be borne in mind, however, that no one food is essential, that some dietary patterns include little or no dairy products and maintain a high level of dietary health.

Pictogram 3 "shows the quantities of certain protective foods found in two types of diet each good from the standpoint of nutrition. The diets illustrate choices made by village families in the Southeast, each group spending on an average of 25 cents per person per day for food."[5] The smaller quantities of dairy products and of tomatoes and citrous fruits of

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[3] Certain anthropological studies especially from Africa and India, bearing on diet and physical health and the development of certain tribes, have been helpful in appraising the significance to human nutrition of findings from animal experimentation. For example, the Akikuyu tribe, in Africa, eats chiefly cereals, some roots, and fruits—a diet high in carbohydrates and low in calories. Women and children eat quantities of green leaves, but they are taboo for the men. There is a high incidence of bony deformities, dental caries, anemia, and tropical ulcer. The diet of the Massai, another African tribe, consists largely of milk, meat, and raw blood, being high in protein, fat, and calcium. The adults are 5 inches taller than the Akikuyu tribe and 23 pounds heavier and have muscular strength 50 per cent greater, as determined by the dynamometer. Intestinal stasis and rheumatoid arthritis are, however, common among them.

In a Northern India community, diet was found to consist largely of milk and milk products, liberal quantities of vegetables, meat, and whole wheat. People on such a diet were taller and heavier, less subject to dental caries, anemia, and rickets than the Madrassis and other Southern tribes living on polished rice, vegetable oil, and a limited amount of vegetables.

See J. B. Orr and J. L. Gilks, "Studies of Nutrition: The Physique and Health of Two African Tribes," *Brit. Med. Res. Coun.,* Spec. Report Ser. 155, 1931.

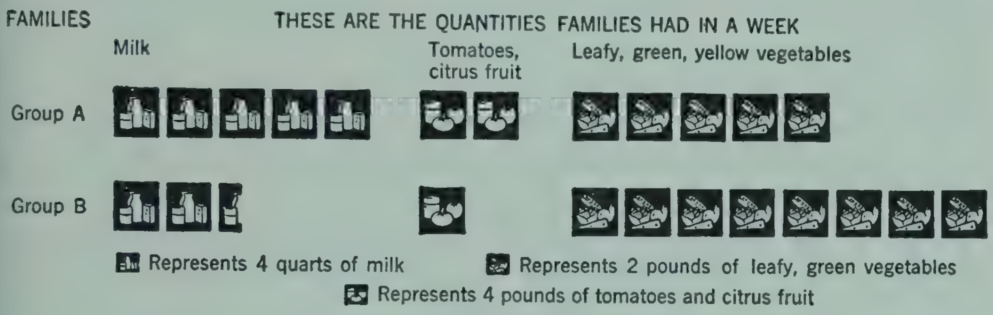
[4] For example, one study reports: "According to nutritionists, a satisfactory allowance for the average-sized family . . . is between 3 to 5 quarts [of milk] a person per week, the nearer the approach to the latter quantity the better. The average consumption of 2.44 quarts reported for the families in the present study was 18.7 per cent below the 3-quart level and 50.1 per cent below the 5-quart level." Consumer's Counsel Division, A.A.A., U. S. Dept. Agr., *A Survey of Milk Consumption in the United States,* Cons. Coun. Ser. Pub. 2.

[5] U. S. Dept. Agr. Misc. Pub. 430, 1941, p. 25.

Group B, in contrast with Group A, were compensated for by larger quantities of leafy, green, and yellow vegetables.

In some studies the total amount of protective foods in the diet is used as a measure of adequacy. For example, a study of school children in rural Rhode Island reports that more than one-third of the entire group was found to use considerably less than an adequate supply of protective foods.[6]

Score cards are used sometimes in judging adequacy. The validity of this presupposes certain customs and the dependence on certain foods for various nutrients. At best this method is a short-cut which should be supplemented by more reliable methods.



PICTOGRAM 3.

"Good" Diets May Have Different Quantities of Various Protective Foods.

Certain food habits are also taken as indicators, for example: Lack of breakfast or a very scanty breakfast or the large consumption of candy, cake, or soft drinks between meals indicates inadequate diet.

For other reasons the consumption of meat is taken by some to be a measure of food adequacy. Since it is an expensive food, there is the presumption that high consumption of meat indicates that the family can at least afford an adequate diet. There is, however, a wide gap, for many families, between "affording" and having an adequate diet.

Other measures of adequacy include a comparison of food expenditures and the "cost of an adequate diet." The cost standard is built up as follows: A given standard of nutrients is accepted, and it is then assumed that they are to be secured in certain foods. Foods are then priced. Thus is secured a cost figure that presumably measures the cost per day, per week, or per month of an adequate diet. Furthermore, it is assumed that, unless a family spends a given amount for food, diets are likely to be inadequate. It is obvious that such a measure of adequacy is very crude. Because of their wide use, some measures of adequacy of diets on this basis are described later in this chapter.

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[6] B. M. Kuschke and M. Whittemore, *The Use of Milk, Fruit, and Vegetables in the Diet of Rural Rhode Island School Children,* R. I. Agr. Exp. Sta. Bul. 253, 1935, p. 3.

Judgments concerning the likelihood of a family's having an adequate diet are based at times on the size of income. In this event it is assumed that a certain expenditure for food is necessary—a matter just considered—and further that the families are unwilling to spend more than a given percentage of their income for food.

Standards of Nutritional Health

Nutritional health may be conceived in terms of minima of various kinds or in terms of an optimum standard. A diet to satisfy acute day-to-day hunger must be rated a very low minimum, possibly bringing in its wake severe forms of deficiency diseases.

A minimum food standard might be one necessary to keep a person alive and prevent serious debilitation which better diet later could not readily correct. Another minimum might be thought of in terms of a "normal" span of life with a "fair" degree of vitality to participate in work and play and to bear children. An optimum diet, on the other hand, might be conceived as one making possible a state of physical and mental well-being in which no improvement throughout the entire life span could be made by change in diet. With deficiency diseases in their obvious forms disappearing in the United States there has been a tendency to discuss nutrition more and more in terms of an optimum standard. To many families, however, standards less than optimum are likely to remain important for some time to come.

Characteristics of Nutritional Health and Their Measurement

Time provides a test of dietary adequacy.[7] If and when a people have maintained for a long time the same dietary habits and other conditions of life, the adequacy of the diet will be indicated in survival, death rate, degree of freedom from certain types of diseases, ease of childbirth, and the general vitality of the people at all ages. Present food habits in the United States are in a state of flux. Of our experimentation McCollum writes:[8]

> We have been trying an experiment in human nutrition on a nation-wide scale, with a dietary which is of a kind which no people in history ever tried to live upon before. There was no way in which the results of such an experiment could have been foretold, for the dietary properties of the individual foods were not understood, and

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[7] C. C. Furnas and S. M. Furnas, *Man, Bread, and Destiny*, 1937, have some interesting comments on the diets of prehistoric times.

[8] E. V. McCollum and N. Simmonds, *Newer Knowledge of Nutrition; the Use of Foods for the Preservation of Vitality and Health* (4th ed.), 1929, p. 468.

> the nutritive requirements of the body were essentially only half understood. It is possible, however, after approximately two generations of experience with a diet of the white bread, meat, sugar and potato type, with small, but generally inadequate additions of other foods of the kinds which are capable of correcting the defects of the principal components of the food supply, to attribute certain unfortunate effects definitely to an unsatisfactory dietary. All the information available seems to warrant the conclusion that we may attribute in a great measure the high incidence of malnutrition among children of pre-school and school ages, the faulty bone growth, bad teeth and faulty posture, to inadequacies in our national dietary, and to perverted appetite resulting from pampering and the development of a preference for sweet foods.

The characteristics of deficiency diseases in their advanced stages are well known. Their occurrence gives evidence only of the existence of a very low level of nutritional health—one that now exists among only a small part of our population. However, research in this field has intensified attempts to recognize nutritional defects in their milder forms. Several techniques are now in the process of being tested, for example: capillary resistance to show the presence of incipient scurvy; photometer test of eyes to detect deficiency of Vitamin A; X-ray to show signs of rickets; examination of the teeth for caries to reveal possible lack of calcium and of other nutrients affecting the condition of teeth; tests for hemoglobin to indicate possible inadequacy of iron. Controversy occurs over the reliability of testing techniques. In addition, scientists are not in agreement concerning the significance to nutritional health of such reliable measures as are secured. For example, what is the significance of mild rickets? Of a hemoglobin level of 80 per cent? How much weight should be attached to any one condition in measuring the nutritional health of an individual?

Judgments concerning malnutrition of children were at one time based almost entirely on height and weight. As their limitations as a measure of the health of any single child became apparent,[9] other body measurements were used and observations of other indices of health taken into account, as, for example:

Indices	*Optimum Health*	*"Existence" Level*
Posture	Erect, vigorous	Drooping, listless
Musculature	Firm, resilient	Flabby
Eyes	Bright	Dull, lusterless
Skin	Clear, rosy, smooth	Greasy, pimply, rough, gray
Lips and inside eyelids	Red	Colorless
Mental attitude	Alert	Sluggish, dull
Health	Free from symptoms of disease	Fighting latent if not active forms of the disease

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[9] See, for example, L. J. Roberts, *Nutrition Work with Children,* 1935, Chapter 3.

To any increasing extent an examination in terms of these conditions is supplemented by the more objective chemical and physical tests mentioned above. In using general health as an indicator of nutritional health it is recognized that subnormal conditions may be caused by such things as lack of sleep, overwork, chronic infection, as well as by inadequate diet. Adequate food is a necessary but not the only condition to optimum health.

Because of uncertainties, reports on the findings of various investigations of nutritional health must be looked upon merely as tentative, awaiting further evidence. Furthermore, in order to determine the bearing of diet on health, it is important that physical examinations be linked with a study of food habits, past as well as present. Studies of this type are being made by Sir John Orr, The Milbank Memorial Fund, and the Ellen H. Richards Research Institute at Pennsylvania State College.

At times greater-than-average stature is taken as an index of greater nutritional health. The use of this index alone has, however, been challenged. One experiment, for example, showed that rats, retarded in growth and development by severe restriction of calorie intake, lived longer than rats allowed to eat as much food as they liked.[10]

Some light on nutritional health can also be discovered by providing supplements to the customary diet and studying their effect on health. Improvement presumably indicates that nutritional health of the group whose diet has been modified was below an optimum level. A number of experiments of this sort have been made.

Since diet is so important to health and longevity, death and morbidity rates are also in some measure an indication of nutritional health.

Occurrence of Deficiency Diseases and Other Specific Evidence of Subnormal Nutrition

A report in 1942, by Jolliffe and McLester, "The Prevalence of Malnutrition," [11] presents many interesting facts. Data on deaths from nutritional deficiencies as reported in the U. S. Registration Area for 1933 to 1938 are given in Table 75. Of these data they state: [12]

> These rates as published . . . do not furnish a reliable index even of deaths from malnutrition. This is due in part to nonrecogni-

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[10] C. M. McCay, Mary F. Crowell, and L. A. Maynard, "The Effect of Retarded Growth upon the Length of Life Span and the Ultimate Effect of Body Size," *J. Nutrition*, Vol. 10, 1935, pp. 63–79. E. S. Hooton, "What Is an American?" *Am. J. Phys. Anthropol.*, Vol. 22, October, 1936, p. 3, points out that greater height and weight may not be synonymous with increased fitness and improved chance of survival.

[11] *J. Am. Med. Ass.*, Vol. 118, Mar. 21, 1942, pp. 944–50.

[12] *Ibid.*, p. 945.

tion of these and of other nutritional factors causing death, in part to mislabeling and in part to the statistical practice of giving precedence to certain diseases as causes of death over others. It would be interesting to know how much malnutrition is concealed in the 370,600 deaths recorded in 1938 under the heading "diseases of the circulatory system," or in the 75,431 deaths entered under its subclassification "diseases of the heart, unspecified," or among the 2,569 deaths listed as due to "alcoholism" or to know how much is masked by the nomenclature of "senility," "cirrhosis of the liver" and "psychoses."

Table 75. Deaths from Various Causes in the U. S. Registration Area, 1933–1938 *

Causes of Death	1938	1937	1936	1935	1934	1933
Pellagra	3,205	3,258	3,740	3,543	3,602	3,955
Beriberi	42	21	11	7	5	1
Scurvy	30	27	33	30	36	28
Rickets	244	235	270	261	292	329

* N. Jolliffe and J. S. McLester, "The Prevalence of Malnutrition," *J. Am. Med. Ass.*, Vol. 118, Mar. 21, 1942, p. 945. The increase in beriberi undoubtedly is due to better diagnosis.

Deaths, of course, do not indicate the occurrence of the deficiency disease in its mild forms. It is estimated, for example, that in 1938 there were 100,000 cases of active pellagra in the United States.[13]

Scurvy was the dreaded scourge of early settlements and was the disease which for centuries brought enfeeblement and death to crews whose rations, after long weeks at sea, contained no fresh foods. Methods of preventing scurvy have long been known; yet the Public Health Officer of Maine in 1939 reported 5,000 cases of scurvy among the lumberjacks and farmers of Aroostook County.[14] This occurred in spite of the fact that Maine is famous for its potato crop, a food which is an important source of Vitamin C, the preventative and cure for scurvy. This occurrence was, however, sufficiently unusual to be "news." Although severe symptoms of scurvy are seldom seen, "many vague symptoms of ill health, such as restlessness and irritability in infants and children and a run-down feeling in adults, particularly in the spring . . . are probably due to lack of vitamin C."[15]

Jolliffe and McLester reports:[16]

[13] *Proc. Seventeenth Annual Conf., Milbank Memorial Fund,* 1939.

[14] *Time,* Feb. 27, 1939, p. 33.

[15] *1939 Yearbook of Agriculture,* p. 236.

[16] *J. Am. Med. Ass.,* Vol. 118, Mar. 21, 1942, p. 950.

> There is evidence of vitamin C depletion . . . in a large proportion of our population, ranging from 5.5 to 85 per cent of different groups.

Rickets caused chiefly by a shortage of calcium, phosphorus, and Vitamin D or sunlight are an important deficiency disease of young children. Jolliffe and McLester report:[17]

> Present figures indicate that the prevalence of active and healed clinical rickets is approximately 20 per cent of the children of preschool age.

Of the hundreds of young women given a special examination at Iowa State College in an effort to determine their nutritional health, a large proportion shows signs of having had rickets at one time.[18] Rickets cause, among other things, knock-knees, bowlegs, and defective formation of the teeth, jaws, and pelvic bones. Although the toll of lives it takes is not high, the effects are visible throughout the lifetime of the individual. One authority reports that children with rickets show a higher incidence of complications and a higher death rate than those in the same environment without rickets.[19]

Some studies have shown a relationship between income level and the proportion of people having rickets. MacLennan found, for example, that the proportion of women having a contracted pelvis ranged from 1 per cent among women of the well-to-do classes to almost 12 per cent in congested districts in Glasgow.[20]

The poor teeth of the American people, about which a great deal has been written, is held by many to be closely associated with dietary habits. (Agreement does not, however, exist concerning the nutrients needed for optimum dental health.) To the extent that diets are responsible for the present condition of teeth in the United States, they must receive a very low rating. For example, out of 984 boys and girls examined, between the ages of 13 to 15 years inclusive, in the grade schools of Hagerstown, Maryland, 1936, 5.4 teeth per child were found to be decayed, extracted or filled.[21]

Xerosis conjunctivae is a disease of the eye which responds to the ingestion of large amounts of Vitamin A. It was reported in extreme forms in many European countries during and following the war of 1914–1918, when supplies of fat, especially butter, were very low or almost lacking. Wiehl and Kruse report that 87 per cent of 494 pupils in a public school group and all but one of 143 W.P.A. employees who were examined had some degree of xerosis conjunctivae.[22]

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[17] *Ibid.*, p. 948.

[18] Unpublished data.

[19] Sir John Orr, *Food, Health and Income*, 1936, p. 47.

[20] H. R. MacLennan, "Contracted Pelvis in Scotland: Observations on Its Distribution Types, and Severity," *J. Obstet. Gynaecol. Brit. Empire*, Vol. 44, 1937, pp. 245–52.

[21] J. W. Knutson and Henry Klein, "Studies on Dental Caries, IV, Tooth Mortality in Elementary School Children," *U. S. Pub. Health Reports*, Vol. 53, June 24, 1938, p. 1027. These teeth were all "permanent."

Wiehl and Kruse also report that riboflavin deficiency is indicated in 2.3 per cent of a private school group, 76 per cent of a public school group, and 38 per cent of a group of people employed by the W.P.A.[23]

Some study has been made of iron deficiency. Jolliffe and McLester report:[24]

> All surveys . . . show a notably high incidence, especially in children and pregnant women of the lower income groups.

A study of pregnant women in England showed that protein and mineral consumption rose steadily with income and that hemoglobin averages for the various groups ranged from 76 per cent in Group I, those with the lowest incomes, to 90 per cent in Group V, those with the highest income.[25]

An examination of high-school students in a low-rent area in New York City indicated that "nearly all" those examined had one or more mild deficiency diseases which could be diagnosed by special tests. Information was secured concerning the food consumed by pupils in a large public high school of New York City, situated in the lower East Side. Nutritive values of these were compared with recommended allowances. Widespread deficiencies in the diets were reported.[26]

Diet and Stature

The effect of diet on stature gets frequent attention. There has been much speculation, for example, as to why American women entering colleges are found to be an inch taller than women in the same colleges 30 years ago, why the average height of students at Harvard has increased by 2 inches in the past sixty years, why second-generation Europeans in American cities and second generation Japanese in California are larger in stature and of "better" physique than their parents. Diet is held to be an important factor, and there is some evidence that this large stature is associated with better nutritional health.

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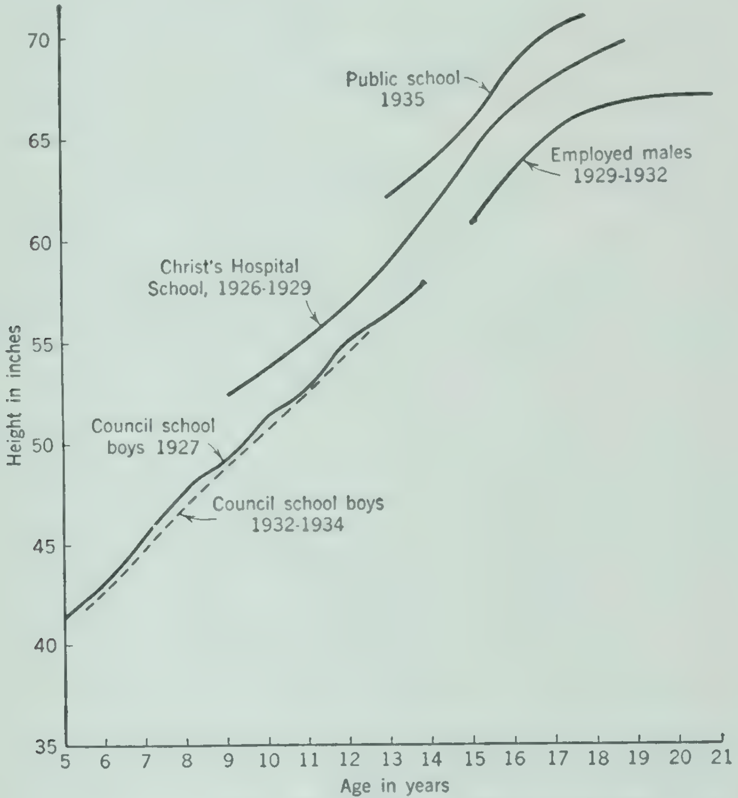
[22] D. G. Wiehl and H. D. Kruse, "Prevalence of Deficiency Diseases in Subclinical Stages," *Milbank Memorial Fund Quart.,* Vol. 19, July, 1941, p. 207. See also P. C. Jeans and Z. Zentmire, "The Prevalence of Vitamin A Deficiency among Iowa Children," *J. Am. Med. Ass.,* Vol. 105, 1936, pp. 996–7; and E. P. Hunt, "Medical Evaluation of Nutritional Status," *Milbank Memorial Fund Quart.,* July, 1941, pp. 252–81.

[23] *Ibid.*

[24] *Op. cit.,* p. 948. See also *Edinburgh Med. J.,* Vol. 45, Part 1, 1938, pp. 1–23.

[25] R. A. McCance *et al.,* "A Study of English Diets by the Individual Method, III. Pregnant Women at Different Economic Levels," *J. Hyg.,* Vol. 38, September, 1938, p. 612.

[26] D. G. Wiehl, "Nutritional Evaluation of Medical Status; VII. Diets of High School Students of Low-Income Families in New York City," *Milbank Memorial Fund Quart.,* January, 1942, pp. 61–76.



Sir John Orr, Food, Health and Income, p. 46.

FIG. 16. Height of males by social groups in England. Public schools are attended by boys from wealthy or well-to-do families, and council schools are tax supported.

In general the higher the income the better is the diet measured in terms of dietary standards and the better also is the general health. Greater stature is also found to be associated with higher income. In one study, well-to-do women were found to be significantly taller.[27] Palmer found, for example, the greater the number of days parents were employed the greater the mean weight of the children.[28]

Orr reports: [29]

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[27] McCance, *op. cit.*

[28] C. E. Palmer, "Growth and the Economic Depression," *U. S. Pub. Health Reports,* Vol. 48, Oct. 20, 1933, p. 1288.

[29] *Food, Health and Income,* 1937, pp. 45–7.

> The British Association anthropometric data of 1883 showed that the average height of boys of thirteen and a half years in an industrial school was 2.6 inches below that of artisan boys of the same age, and 5.8 inches below that of boys of the professional class. It appears in the past fifty years, though the average height of all classes has risen, there has been no marked change in the order of difference between the classes. [See Fig. 16.]

He goes on to point out that these are the differences that one would expect in view of the difference in the body-building materials to be found in the diets of the rich and the poor.

McKay and Brown report "those [children] receiving the better diets gained at a greater rate in both height and weight."[30] In Knott County, Kentucky, Williams found the height of children varying with milk consumption: 11 per cent of the children in families using more than a quart per capita per day were short in stature, whereas 41 per cent of those averaging less than a pint per capita per day were rated short of stature.[31]

An investigation of children of the professional and laboring classes in Newcastle-on-Tyne, using the usual arbitrary standards, revealed the following:[32]

	Percentage of Children of	
	Laboring Class	*Professional Class*
Below normal weight	55	13
Above normal weight	11	48
Below normal height	47	5
Above normal height	2	11
Hemoglobin below 65%	23	0

Effect of Supplements to Diets[33]

Evidence that customary diets are below an optimum can be secured by studying the effect of supplementing these diets. The effect of additional milk in the diet of a group of "undernourished" school children in Philadelphia in 1930–1932 has been studied by Lininger. He found that milk consumption brought marked gains in weight. (See Table 76.)

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[30] H. McKay and M. A. Brown, *Seasonal Variation in the Rate of Growth of Pre-School Children,* Ohio Agr. Exp. Sta. Bul. 482, 1931, p. 32.

[31] Faith Williams *et al., Family Living in Knott County, Kentucky,* U. S. Dept. Agr. Tech. Bul. 576, 1937, p. 44.

[32] Spence and Charles, *Investigation into the Health and Nutrition of Certain of the Children of Newcastle-on-Tyne between the Ages of One and Five Years,* February, 1934. Citation taken from Et. Burnet and W. R. Aykroyd, "Nutrition and Public Health," *Quart. Bul. Health Org., League Nations,* Vol. IV, No. 2, June, 1935, p. 384. Other studies of interest are summarized in this publication.

[33] For discussion of English experiments, see Et. Burnet and W. R. Aykroyd, *op. cit.*

Table 76. Relation of the Use of Milk to Gains in Weight of Undernourished Pupils, Philadelphia Public Schools, 1930–1931 and 1931–1932 School Years *

Milk-Consumption Practices	Pupils	Average Semester Gain per Pupil †		Probable Error of Mean Gain
	Number	*Pounds*	*%*	*Pounds*
I No milk	268	2.73	100	0.09
II All milk users	3,865	3.53	129	0.03
(*a*) Free milk in school	931	3.40	125	0.05
(*b*) Milk at school—no record of home use	440	3.39	124	0.07
(*c*) Milk at home—no record of school use	1,893	3.50	128	0.04
(*d*) Milk at home and school	601	3.95	145	0.06

* F. F. Lininger, *op. cit.*, p. 556. † The "no-milk" group equals 100.

There seemed to be evidence also that the milk supplement led also to an improvement in scholarship.[34]

The effect on growth, bone development, and dental caries of a group of institutional children has been studied. By all methods of comparisons used, the growth of the 72 children receiving one pint of milk in addition to the regular institutional diet exceeded that of the 36 children receiving no additional milk.[35] The stage of ossification of the wrist bone of those children receiving the additional milk over those having no additional milk amounted in terms of growth to over one-third of the year's quota of expected gain in bone development.[36] The difference in tooth condition of the two groups was not significantly different statistically.[37]

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[34] F. F. Lininger, "Relation of the Use of Milk and the Physical and Scholastic Progress of Undernourished School Children," *Am. J. Pub. Health*, Vol. 23, 1933, pp. 553–60. See also B. Wait, "Supplementary Midmorning Feeding of Rural School Children," Mass. Agr. Exp. Sta. Bul. 310, 1934. Charlotte I. Johnston and W. C. Hopper, *An Economic Study of the Consumption of Milk and Cream in Vancouver*, Dom. Can. Pub. 678, Tech. Bul. 25, 1940, report a decline in the percentage of children with school grades below normal and a rise in the percentage of those having grades above normal with an increase in the monthly per capita expenditure for milk and cream. Such an association, of course, may have been due to other factors connected with a large income that made the higher expenditure of milk and cream possible.

[35] L. J. Roberts *et al.*, "Effect of a Milk Supplement on the Physical Status of Institutional Children," *Am. J. Diseases Children*, Vol. 56, August, 1938, pp. 287–300.

[36] V. MacNair and L. J. Roberts, "Ossification of the Bones of the Wrist," *Am. J. Diseases Children*, Vol. 56, September, 1938, pp. 494–509.

[37] L. J. Roberts *et al.*, "Progress of Dental Caries," *Am. J. Diseases Children*, Vol. 56, October, 1938, pp. 805–23.

In Great Britain men rejected as unfit for army service because of underweight and chest defects were given optimum diets plus hard physical work, healthful recreation, and long sound sleep. "As a result . . . 87 per cent of 834 young men so treated were accepted and passed into the army."[38]

Many factories are finding that working efficiency can be considerably increased by lunches. Some also provide vitamin concentrates.[39] Further study of optimum diets of factory workers is being made by the Committee on Nutrition in Industry of the National Research Council.

Death Rate[40]

Diet is an important health factor. It is therefore not strange that a question of nutritional health and death rate should arise occasionally. It has already been pointed out that little information can be gleaned from reported causes of death, for the demise of few people is credited to inadequate diet. Although it may prepare the way so that resistance to infection and normal functioning of various organs no longer occur, it seldom strikes the final blow. Pending further investigation, its importance can only be inferred. Attention, however, is frequently drawn to the fact that quality of diet varies with income, and so also does infant death rate. For example, the U. S. Children's Bureau studies show a marked decrease in infant mortality rates with increase in the father's earnings. The rates for seven cities surveyed are reported as follows:[41]

Income	*Infant Death Rate*
Under $ 450	167
$ 450– 549	106
550– 649	117
650– 849	108
850–1,049	83
1,050–1,249	64
1,250 and over	59

A study in Denver, Colorado, discovered that out of 1,000 infants born into families with incomes of $3,000 a year or more, only 30 died; but among families earning less than $500 a year, 168 died.[42]

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[38] Committee on Nutrition in Industry of the National Research Council, *The Food and Nutrition of Industrial Workers in Wartime,* Reprint and Cir. Ser. 110, 1942, p. 5.

[39] *Ibid.,* pp. 7–8.

[40] For general discussion of factors affecting death rate, see Metropolitan Life Insurance Co., *Twenty-Five Years of Health Progress,* 1937.

[41] R. M. Woodbury, "Infant Mortality in the United States," *Ann. Am. Acad.,* Vol. 188, November, 1936, p. 103.

[42] *Consumers' Guide,* Nov. 7, 1938, p. 4.

The death rate of infants under one year of age per 1,000 live births of "whites" is much lower and the income on the whole is higher than those of "others."

McDougall in discussing the status of health in certain European cities writes: [43]

> A review of the state of health of people at different income levels reveals a close association between the money per head available for food and the state of nutrition, on the one hand, and the disease and death rate and general health, on the other. In cities such as London, Berlin and Paris, general mortality rates in poor districts are some 50 percent higher than in the wealthier ones, while tuberculosis mortality is often four times as high in the former as in the latter and the corresponding infant mortality is as 2 to 1. As income increases, disease and death rate decrease, children grow more quickly, adult stature is greater and general health and physique improve.

The death rates have been computed for districts classified by income for the United Kingdom: A corrected death rate of prosperous districts was found to be lower than the average for the whole country, whereas that of poorer districts was found to be higher. Hall writes,[44]

> Since in the United Kingdom it is probable that sanitation and water supply and such health measures as the segregation of infectious diseases are not markedly less deficient in the poorer as compared with the richer districts, it seems probable that the major cause for the variation in the figures for corrected death rates can be found in the differences in consumption in different districts. Without discussing whether mere longevity should be the chief end of man, it is relevant to note that high death rates are evidence of the extent to which the human mechanism is unsatisfactorily equipped or undernourished in different regions of the world.

Sickness Rate

The relation of diet to sickness, like its relation to death, can only be inferred. Certainly many factors other than diet affect morbidity, and in addition low income may be due at least in part to poor health. There is, however, no evidence that poverty and good health are boon companions. All evidence is to the contrary.

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[43] F. L. McDougall, *Food and Welfare,* Geneva Research Center, Geneva Studies, Vol. 9, November, 1938, p. 28.

[44] *Measures of a National and International Character for Raising the Standard of Living,* League of Nations, Economic Committee, Official A.18, 1938, II.B., p. 13.

Data on sickness rates are of interest since all evidence points to poorer nutrition and higher sickness rates among low- than among high-income families.

1. Southern states have a relatively high proportion of families with low income and poor diets. In relative health standing all states of the South rank in the fourth or lowest quartile in relative health standing, except Oklahoma, Kentucky, and Florida which are in the third quartile.
2. Influenza in the epidemic of 1918 had a higher incidence among the poor than the well-to-do and the rich. The more-crowded living conditions of the poor may have been an important factor here.
3. The National Health Survey reports a steady fall with rise in income in the days of disability per person and per disabling case (see Table 77 and Pictogram 4).

Nutritional Health and the Depression

Increase in unemployment and decline in the income of a large number of families are outstanding characteristics of the depression years. What effect did this change have on nutritional health? Many reports bearing on this matter have been made.

Infant death rates had been falling prior to 1929. This fall continued until 1932, after which there was a slight rise. Woodbury says:[45]

> The failure of the rates to rise promptly and strikingly is doubtless to be attributed not so much to the failure of economic conditions to influence the rates as to the fact that public health measures and private care practices learned by mothers in all classes through well-baby or health centers, clinics, and literature do not lose their effectiveness through the depression. . . . There is considerable leeway in

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[45] R. M. Woodbury, "Infant Mortality in the United States," *Ann. Am. Acad.*, Vol. 188, 1936, pp. 104–5.

Eliot points out: "Mortality rates . . . do not provide a complete or adequate measure of the effect of depression on child health. The actual condition of the children themselves, their nutrition, their growth and development, and the illnesses from which they suffer must be taken into consideration when judging the effect of economic conditions. Moreover, mortality data are not so collected that comparisons may be made between the rates for those sections of the population that are known to have suffered from prolonged unemployment and the rates for those sections of the population that have continued in full-time employment. Though the number of individuals seriously affected by the depression is vast from the point of view of providing relief, it represents but a relatively small proportion of the total population, and changes in the mortality rates of the group may have been masked by continuation of the general downward trend in the larger proportion of the population that has at no time reached the level of real economic want." (M. M. Eliot, "Child Health, 1933–34," *J. Pediatrics*, Vol. 4, June, 1934, p. 820.)

Table 77. Disability in Relation to Family Income[*]

(Data Secured in the National Health Survey)

Annual Family Income	Annual Rate		
	Disabling cases per person	Days of disability	
		Per person	Per disabling case
Under $1,200	0.36	8.9	24.7
$1,200–1,999	0.37	5.7	15.4
2,000–2,999	0.36	5.0	13.9
3,000 and over	0.34	3.8	11.2

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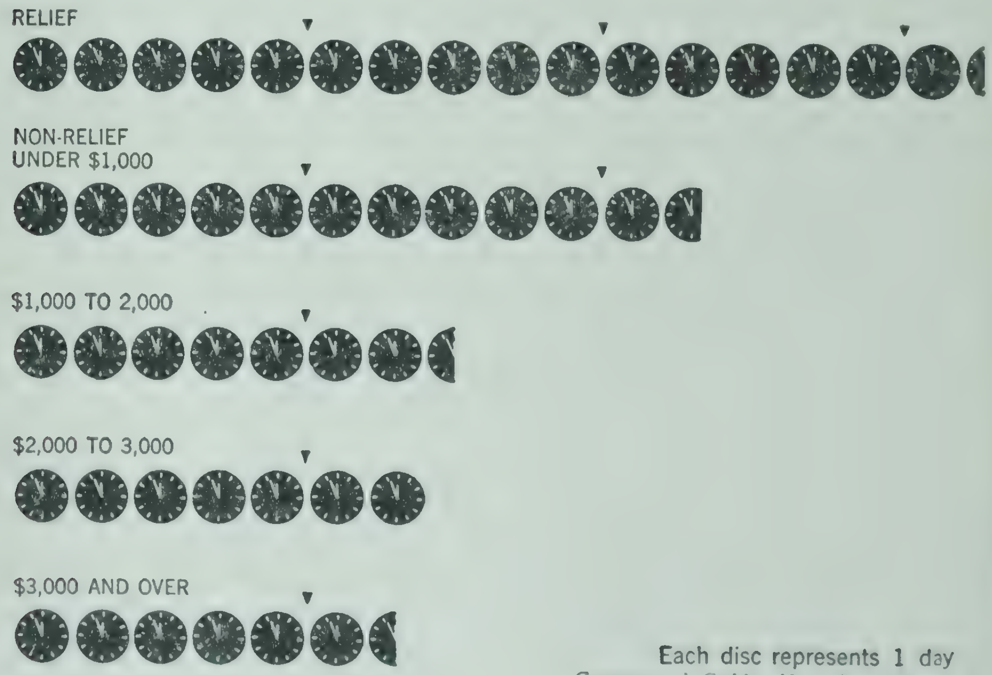
[*] G. St. J. Perrott, "The State of the Nation's Health," *Ann. Am. Acad.*, Vol. 188, 1936, p. 141. See also M. C. Hardy *et al.*, "Physical Fitness of Children at Different Economic Levels," *J. Am. Med. Ass.*, Vol. 117, December, 1941, pp. 2154–61.



Consumers' Guide, Nov. 7, 1938, p. 4.

PICTOGRAM 4.

Poor People Are Sick More.

The average person in these income groups was disabled this number of days in one year by illness. This figure reports the findings of the National Health Survey.

> the application of income in its effects upon the conditions of child life so that temporary changes in money income may not be immediately reflected in higher rates. . . .

McLester, a noted nutritionist, contends that malnutrition did not increase with the depression.[46] He points out that decline in income was accompanied by decline in food prices and a liberal relief program. Evidence to support his contention that malnutrition has not increased seems to have been drawn chiefly from death rates and findings of studies of weight of children.

Palmer, for example, studied the weights of children in Hagerstown, Maryland, during May, 1933, to determine whether they differed significantly from those of children of the same age and sex in that city during the prosperous years of 1921 to 1927. Any differences in average weight were not found to be statistically significant.[47]

Geiger and Barrett, after a study of children in San Francisco, concluded that the nutritional health of children of families securing commissary relief compared very favorably with the normal or privileged group of children.[48]

Diagnosis of malnutrition of clients coming to the Community Health Center, New York, during the years 1928–1932 indicates considerable increase in malnutrition with the depression, the increase being especially marked for those under 16 years for 1931 and 1932.[49] (See Table 78.)

Kiser and Stix reported the nutritional ratings of a group of New York City school children according to per capita income and the kind of relief given. The nutrition of children in families on work relief in general was rated very low. Those in families receiving home relief (grocery orders) had a better nutritional rating than those in non-relief families with per capita incomes under $4.00. Families were also classified on the basis of income change. Findings would suggest that a decrease in income quickly brings a drop in nutritional status and that an increase in income

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[46] J. S. McLester, "Influence of Depression on Nutrition of the American People," *J. Am. Med. Ass.,* Vol. 106, 1936, p. 1869.

[47] C. E. Palmer, "Growth and the Economic Depression," *U. S. Pub. Health Reports,* Vol. 48, 1933, pp. 1277–92. See also, C. E. Palmer, "Further Studies on Growth and the Economic Depression," *U. S. Pub. Health Reports,* Vol. 49, 1934, pp. 1453–69.

[48] J. C. Geiger and P. S. Barrett, "A Nutritional Survey of Forty-Five Hundred Children on Relief," *Am. J. Pub. Health,* Vol. 25, February, 1935, pp. 183–91. Measures other than height and weight were used.

[49] Esther Jacobs, "Is Malnutrition Increasing?" *Am. J. Pub. Health,* Vol. 23, Part 2, August, 1933, pp. 784–8. Almost all patients were Jewish. The medical staff based the diagnosis of malnutrition on height, weight, condition of the skin and tissues, mucous membranes, musculature, and general physical condition. An attempt was made to maintain the same basis of the diagnosis throughout the entire period.

*Table 78. Percentage of Individuals Found To Be Malnourished among Those Examined at the Community Health Center, New York City, May to October (inclusive)**

Age in Years	1928	1929	1930	1931	1932
Under 6	11.4	11.9	11.1	16.5	22.9
6 to 12	30.5	30.5	28.1	35.6	41.5
13 to 16	28.4	29.5	31.5	37.3	42.5
17 to 20	27.4	30.6	46.7	27.4	32.0
Over 20	13.7	23.0	23.9	23.7	26.3
Total	23.0	25.7	26.0	30.8	36.5

* E. Jacobs, *op. cit.*, p. 786.

very quickly reduces the signs of very poor nutrition, but that a high standard of nutrition can only be achieved over a period of years.[50] (See Table 79.)

Of the status of child malnutrition during the depression, Roberts says:[51]

> In some localities . . . relief has been provided, but this has not always been adequate, and many of those most in need have refrained from accepting aid so long as they could manage in any way to subsist without it. It is too soon to judge the results. . . . There are accumulating numerous bits of evidence, however, which indicate that the effects of the depression are beginning to tell on the groups most

*Table 79. Nutritional Rating of a Group of New York City School Children, in 1933, Classified According to per Capita Weekly Family Income in 1932 and 1933 **

Weekly Family Income per Capita	Per cent with Specified Rating	
	Good	Poor and very poor
Less than $4.00 in both years	16.6	42.1
$4.00 or more in 1932, but less than $4.00 in 1933	27.8	35.2
Less than $4.00 in 1932, but $4.00 or more in 1933	24.3	24.3
$4.00 or more in both years	34.7	26.7

* C. V. Kiser and R. K. Stix, *op. cit.*, p. 304.

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[50] C. V. Kiser and R. K. Stix, "Nutrition and the Depression: Findings of a Medical Examination of a Group of New York School Children in Relation to Family Income," *Milbank Memorial Fund Quart.*, October, 1933, pp. 299–307.

[51] L. J. Roberts, *op. cit.*, pp. 245–6.

> severely affected thereby. . . . Reports are, of course, vitiated by lack of adequate objective methods of judging malnutrition; but since in most cases judgments have been made by the same methods and often by the same examiners in the various years, the uniformly higher percentages (of children showing signs of malnutrition) found coincident with the later years of the depression are doubtless of some significance.

After a house-to-house survey of families of wage-earners in 10 localities, of sickness and medical care in relation to employment for the years 1929 to 1932, Perrott and Collins report:[52]

> The highest illness rates were observed among those who had suffered the greatest *change* in standard of living and that the excess in illness existed among children as well as adults.

They conclude that "it seems reasonable to suppose that reduced standards of living, including crowded housing conditions and lack of adequate food and clothing and medical care which accompanies loss of income, had a part in causing the higher sickness rate in 1933."[53]

Standards of Adequacy of Diets in Terms of Nutrients

Because of the difficulty encountered in measuring nutritional health, adequacy of diet commonly has been appraised in terms of nutrients consumed. Family consumption, not that of individual members, is usually measured. Waste, after food is purchased, is usually ignored.

Judgments here, as with nutritional health, must be made in terms of standards. They may vary all the way from a very low minimum to the "optimum." Stiebeling, in appraising the adequacy of American diets, has used ratings "good," "fair," and "poor." The diet designated as "good" contained the following quantities of nutrients:

Nutrient	*Allowance for a Moderately Active Man*
Calories	3,000
Protein	67 grams
Calcium	0.68 grams
Phosphorus	1.32 grams

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[52] G. St. J. Perrott and S. D. Collins, "Relation of Sickness to Income and Income Change in 10 Surveyed Communities," *U. S. Pub. Health Reports,* Vol. 50, 1935, p. 622. Similar evidence is presented by G. H. Berry, *Idleness and the Health of a Neighborhood,* New York Association for Improving the Condition of the Poor, 1933.

[53] Analysis of data showed that loss of income because of sickness was not an important factor in causing a high sickness rate to be associated with lowered income.

Nutrient	*Allowance for a Moderately Active Man*
Iron	15 milligrams
Vitamin A	6,000 international units
Vitamin B (thiamin)	500 international units (1.5 mg.)
Vitamin C (ascorbic acid)	1,500 international units (75 mg.)
Vitamin G (riboflavin)	600 Sherman units (1.8 mg.)
Pellagra preventive (nicotinic acid, i.e., niacin)	100 per cent prevention

The diets classed as "poor" are considerably lower in all the nutrients listed above and are considered to be in need of marked improvement. "Diets that were better in every respect than the specifications for poor diets, but poorer in one or more nutrients than the specifications for good diets were classed as fair." [54]

Frequent revision of standards is to be expected as nutritional experimentation continues. Investigations of dietary adequacy in the near future are likely to use the recommendations of the Committee on Food and Nutrition of the National Research Council made during May, 1941. The quantity of some nutrients is somewhat higher [55] than those of the "good" diet already described, for example, 0.8 gram of calcium in place of 0.68 gram, 1.8 mg. of thiamin in place of 1.5 mg., 2.7 mg. of riboflavin in place of 1.8 mg. If the Committee's recommended dietary allowances had been used by Stiebeling in place of her standard for a "good" diet in appraising the dietary of American families of 1934–1936, an even smaller proportion of the diets would have been rated "good."

Nation-wide dietary studies, made during 1934–1937, of families of wage-earners and clerical workers and of other occupational groups in the Consumer Purchases Study have already been described. Largely on the basis of data thus secured, the adequacy of American diets has been appraised.

Ratings of Family Diets in the United States

Pictogram 5 presents a general appraisal of the diets of families in the United States; 35 per cent have "poor" diets, only 27 per cent "good" diets, and 65 per cent have "good" or "fair" diets.

Farm families in general have better diets than non-farm families: 50 per cent of the former and only 20 per cent of the latter were reported as having diets rated "good."[56] The proportion of the two groups having poor diets is, however, more nearly the same: 25 and 35 per cent, respectively. (See Pictogram 6.)

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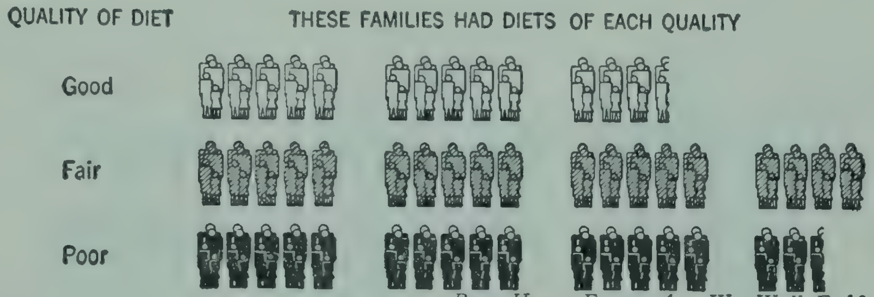
[54] U. S. Dept. Agr. Cir. 507, p. 73.

[55] The Committee points out that "judgments as to requirements are necessarily based on incomplete and often conflicting reports of research and clinical findings." *Recommended Dietary Allowances,* 1941.

Small families have better diets than large families where incomes are equal. (See Pictogram 6.)

Food expenditures are affected by income, and food expenditures in turn affect adequacy of diet. (See Pictogram 7.) No families spending $1.75 per person per week (8.3 cents per meal) had diets rating "good"; whereas 65 per cent of those spending $4.55 per person per week (21.7 cents per meal) had diets rating "good."



Bur. Home Econ., Are We Well Fed? U. S. Dept. Agr. Misc. Pub. 430, 1941, p. 7.

PICTOGRAM 5.

How Well Fed Are We in the United States?

Each symbol represents 2 per cent of the families in the United States.

Very different diets are secured, of course, for the same expenditure. (See Pictogram 8.) In villages and cities in the North and West, among families spending 15 cents per person per meal, 22 per cent had "good" diets, 64 per cent "fair" diets, and 12 per cent "poor" diets.[57] Skill in

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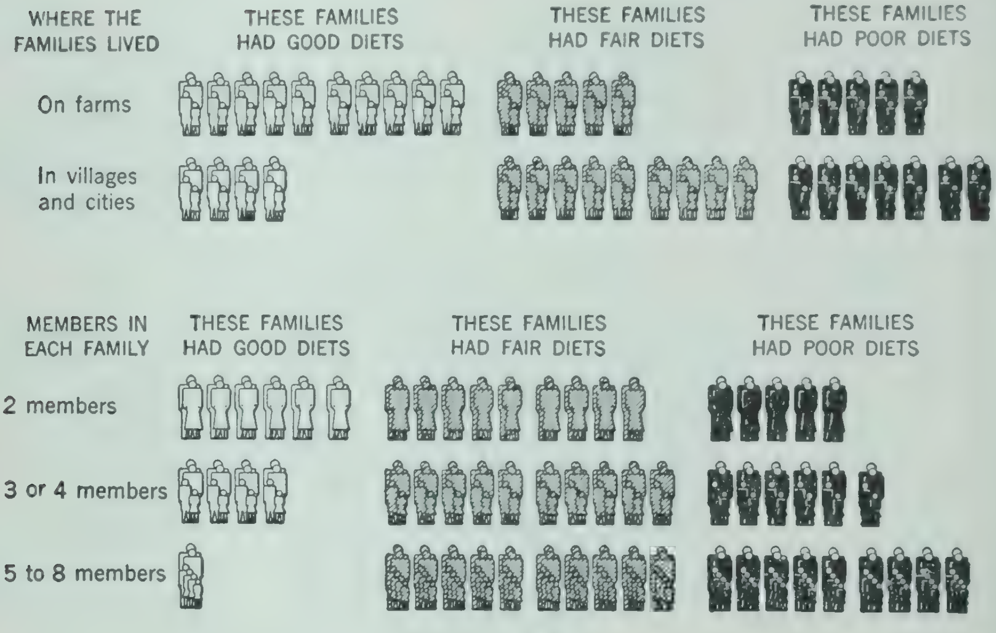
[56] Other studies compare diets of farm and non-farm families. W. Gee and W. H. Stauffer, *Rural and Urban Living Standards in Virginia,* The Institute for Research in the Social Sciences, Univ. Va., 1929, p. 119. This study reports the poor urban group as having an average iron consumption 16 per cent below and the poor farm group 18 per cent above the standard. The intermediate urban group had an average calcium consumption 17 per cent below and the corresponding farm group a consumption 97 per cent above the standard.

A similar difference between city and farm diets is reported from England. Data on diets were secured in Essex County, in 1923, and compared with the findings of other studies. "The general indications are that urban workers, securing varying scales of higher wages than rural workers, are not securing commensurate superiority of diet, while the diet of the very poor urban classes is considerably lower than that of the agricultural laborers . . ." A. B. Hill, "A Physiological and Economic Study of the Diets of Workers in Rural Areas as Compared with Those of Workers Resident in Urban Districts," *J. Hyg.,* Vol. 24, October, 1925, pp. 189–240.

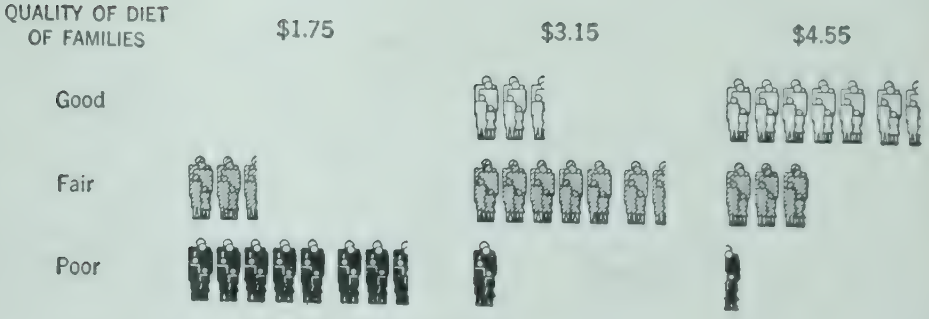
[57] U. S. Dept. Agr. Misc. Pub. 430, 1941, p. 16.



PICTOGRAM 6.

Farm Families Have Better Diets and Small Families Fare Better Than Large When Incomes Are Equal.

Each symbol represents 5 per cent of the non-relief families in each group.



PICTOGRAM 7.

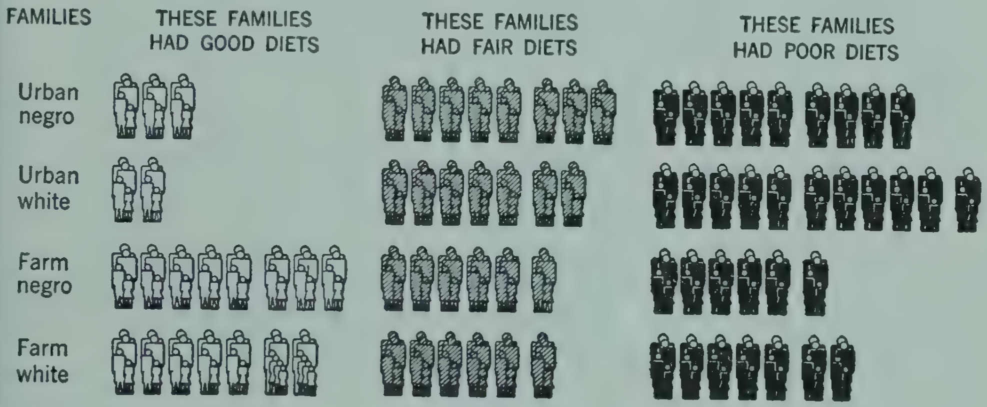
Families Having Diets of Specified Quality, Classified by Food Expenditure per Person per Week.

Each symbol represents 10 per cent of the families at each food-spending level.

getting a good diet from a given expenditure for food seems to be unaffected by occupational grouping.[58]

Negro families on the whole had poorer diets than white families. Low income was, however, the basic cause, since for a given expenditure Negro families in the Southeast managed to get a more adequate diet than white families. (See Pictogram 8.)

Other studies have been made of selected groups of farm families. Moser, for example, studied the diets of 178 white and 97 Negro farm families in the South Carolina Piedmont. Records were secured of "weighed amounts of the foods consumed." Families "which did not have at least one cow were seldom taken, since it was more than probable that their diets would be of poor quality."[59] Diets were rated A, B, and C.[60] The diets of about 10 per cent of the white and 30 per cent of the Negro families were rated C. Among white families consuming food valued at $60 to $89 per capita per year, 36 per cent had grade A diets; whereas among those consuming food valued at $90 to $119, 61 per cent had Grade A diets.



PICTOGRAM 8.

Diets of White and Negro Families Spending 10 Cents per Person per Week.

Each symbol represents 5 per cent of the non-relief families of each color in the Southeast, with food worth 10 cents a person a meal.

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[58] *Ibid.*, p. 19.

[59] A. M. Moser, *Food Consumption and the Use of Time in Food Work among Farm Families in the South Carolina Piedmont,* S. C. Agr. Exp. Sta. Bul. 300, pp. 5 and 44.

[60] Diets meeting or exceeding all requirements of the standard used were rated Grade A or adequate. Those that fell below the standard in one or more respects but provided at least two-thirds of the nutritive standard were graded B or restricted. All dietaries providing less than two-thirds of the nutritive standard were graded C, or "seriously deficient." *Ibid.*, p. 11.

Following a study of farm families in the Coastal Plain of South Carolina, Moser [61] found that the diets of 64 per cent of those spending less than 20 cents per man per day were definitely inadequate.

> It was not until white diets cost 35 cents or above and Negro diets 30 cents or above that the majority of them proved to be good from a nutritional point of view.[62]

Cowles studied the food consumption of a group of 109 Wisconsin farm families during December, 1933, and January, 1934.[63]

> A study of dietary adequacy, computed for 57 of the 109 families, showed that a greater percentage of the diets were deficient in iron than in any other nutrient. . . . Adequacy of diet was clearly and directly related to the money value of the food eaten.

Deficiency of Specific Nutrients

The nature of dietary deficiencies and their change with rise in food expenditure is shown in Fig. 17, for wage-earners and clerical workers in the various regions.[64]

Findings of this study indicate many types of deficiencies in the diets of families having low expenditures for food. Deficiencies were more marked for some nutrients than for others and are more common in some regions than others. In all cases the quantity of the various nutrients rises with increase in food expenditure per capita. Marked shortages occur for calcium and all the vitamins except that preventing pellagra.[65] Its con-

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[61] *Ibid.*, p. 19.

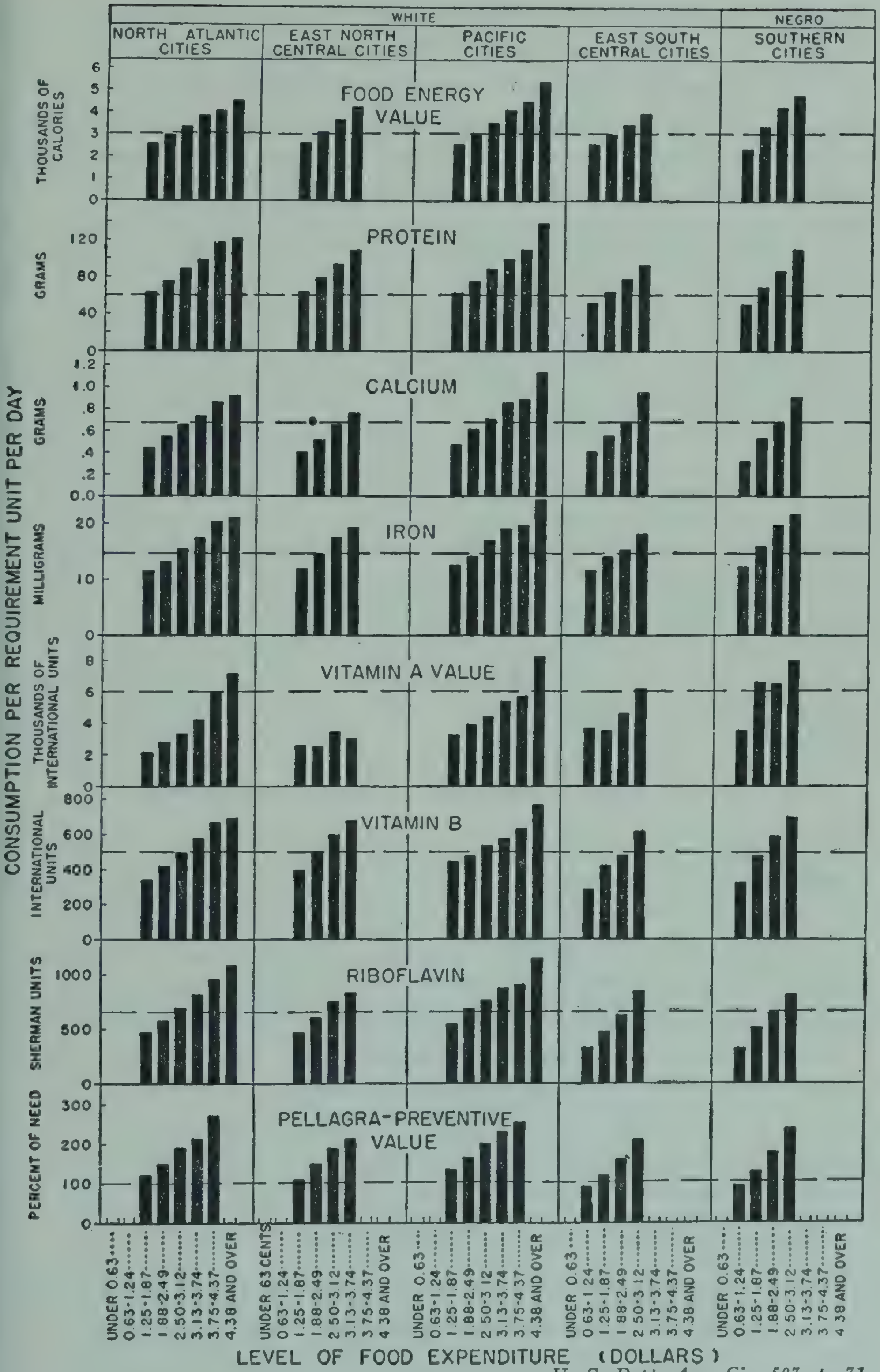
[62] *Farm Family Diets in the Lower Coastal Plains of South Carolina*, S. C. Agr. Exp. Sta., Bul. 319, 1939, p. 35.

[63] M. L. Cowies, "A Study of Winter Food Consumption of Wisconsin Farm Families," *J. Am. Diet. Ass.*, Vol. 2, November, 1935, pp. 322–30.

[64] This study is based on dietary records covering one week each, obtained during the period December, 1934, to February, 1937, in 43 industrial centers in 8 major geographical regions in the United States. Most of the records were secured from white families; some, however, were also obtained from Negro families in the Middle Atlantic and Southern cities. In making the study an inventory was taken first and all food brought into the home during the week was weighed. At the end of the week another inventory was taken. About 4,000 records were analyzed.

"Families were excluded if during the report year they had received relief, or if the chief earner had been employed for less than a minimal period, or if family incomes were under $500." Representation is very small for families with incomes in excess of $3,000. Southern Negro families included are confined mostly to those of relatively high economic status.

[65] The study by H. C. Sherman and L. H. Gillett, *The Adequacy and Economy of Some City Dietaries*, 1917, reports a deficiency of calcium and iron. These two minerals were also found to be below the standard among low-income families in a Canadian city. See M. Sandin *et al.*, "Food Consumption of Twenty-Nine Families in Edmonton, Alberta," *Can. Pub. Health J.*, Vol. 30, April, 1939, pp. 177–83. Similar deficiencies are reported by J. Orr, *op. cit.*



U. S. Dept. Agr. Cir. 507, p. 71.

FIG. 17. Amount of various nutrients in food purchased, per food-requirement unit, families classified by region and by amount spent for food. The dotted line indicates the standard.

sumption is low only in the South for families whose food expenditure is low.[66]

Booher reports that vitamin consumption increased with food expenditure and that families living in cities and on farms in each region tended to have more liberal allowances of Vitamin A than those living in villages. (See Table 80.) City dwellers have access to good markets; farm families

*Table 80. Vitamin A Value of Diets of Families Not on Relief, 1935–1936 **

Region and Degree of Urbanization	Average International Units per Adult per Day for Families Spending Weekly per Capita for Food †				
	$1.25–$1.87	$1.88–$2.49	$2.50–$3.12	$3.13–$3.74	$3.75–$4.37
City ‡					
North Atlantic	2,200	2,800	3,400	4,200	5,700
East North Central	2,600	2,500	3,500	3,000	5,000
East South Central	3,600	4,600	6,200		
Pacific	3,300	4,000	4,500	5,400	5,700
Village §					
North Central	1,500		2,900		
Southeast	2,600		4,100		6,000
Pacific	2,500		3,300		3,700
Farm ‖					
North Central	3,000		3,900		4,200
Southeast	3,600		5,400		7,200
Pacific	3,600		5,000		

* S. L. Smith, *op. cit.* Data furnished by H. K. Stiebeling, U. S. Bur. Home Econ.

† The following scale of family coefficients was employed in evaluating the Vitamin A intake for families of different types in terms of an adult equals 1.

Child under 4 years	0.75
Boy 4 to 6, girl 4 to 7	0.75
Boy 7 to 8, girl 8 to 10	0.90
Boy 9 to 10, girl 11 to 13	0.90
Adult	1.00

The coefficients are essentially the same as the factors used to evaluate adult intake of protein.

‡ Families of employed workers.

§ All occupational groups.

‖ Farm operators—farm-furnished food valued at farm prices.

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[66] For further discussion of family diets as related to income and expenditure in various parts of the South see, for example, D. Dickens, "Health and Prosperity in the South," *J. H. Econ.*, June, 1938, pp. 370–6; A. Moser, *Farm Family Diets in the Lower Coastal Plains in South Carolina*, S. C. Agr. Exp. Sta. Bul. 319, 1939; D. Dickens, *Family Living on Poorer and Better Soil*, Miss. Agr. Exp. Sta. Bul. 320, 1937.

can provide themselves with milk, butter, eggs, and garden produce; village families share only to a limited extent in both respects.[67] Similar difference in Vitamin C consumption is reported by Smith.[68]

For the lowest expenditure level, Vitamin C intake among city families varied from 40.0 mg. per unit per day in North Atlantic region to 70.0 mg. in the Pacific region. At almost all corresponding food-expenditure levels farm families had a somewhat higher consumption than city families. For all groups the intake of Vitamin C rose with increase in per capita expenditure for food.

Studies of diets of relief farm families are limited in number. One has been made by Cowles in a land-purchase area in Wisconsin, comparing the diets of relief families, both commodity relief and work relief, with non-relief families. Of their diets she states,[69]

> Over three-fifths were deficient in at least one nutrient. Work relief diets were most nearly adequate and non-relief diets were least adequate, probably because many of the non-relief families were attempting stringent economy in an effort to remain off the relief rolls. . . . In the non-relief families, the larger the household the greater the degree of dietary deficiency; in the two relief groups (i.e., work relief and commodity relief) no relation was apparent. In all groups dietary adequacy was associated with a high total food cost.

Shifts with Season in Dietary Adequacy

Some families, depending on products from their own farms, vary their food consumption greatly throughout the year. Modern transportation, however, has certainly wiped out much of the season-to-season shift in type of foods and nutrients consumed by city families. Price variation and consumer preference are, however, still present. Stiebeling and Phipard found that summer was the high point in the consumption of calcium in the diet. The low point in iron consumption comes in the summer, probably largely because meat consumption at that time is relatively low. Ascorbic acid (Vitamin C) is high in the summer doubtless because consumption of fresh fruits and vegetables is at a high point. Clayton reports that children examined in a Maine city showed an increase in the number having inflamed gums, "from 7 percent in the fall to 25 percent in the spring. . . . This would seem to indicate that a large number of children are receiving insufficient amounts of vitamin C-containing foods during the late winter and spring."[70]

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[67] L. E. Booher, "Vitamin A Requirements and Practical Recommendations for Vitamin A Intake," *J. Am. Med. Ass.*, Vol. 110, 1938, pp. 1920–4.

[68] S. L. Smith, "Human Requirements of Vitamin C," *J. Am. Med. Ass.*, Vol. 111, Nov. 5, 1938, pp. 1753–64.

[69] M. L. Cowles, *Food Consumption of Wisconsin Relief Families* (mimeo.), 1937, p. 1.

Seasonal shift in diets has been studied to some extent among Southern families. Moser found,[71] for example, high food consumption among Negro families when food was plentiful and a very low consumption in the late winter months. Among the families studied there was a marked variation in the consumption of vegetables and fruits, it being low in late winter. Other studies of farm families show meat consumption low in the summer but high in the winter when it could be more readily stored. Dickens[72] scored diets of selected farm families in Mississippi for February, July, and November. Diets were found to be best in July and poorest in February.

Cost Standards as a Measure of Adequacy of Diet

Cost standards are often the basis of appraising diets when only expenditures are known, the assumption being that unless these amounts are being spent there is a high probability that diets are inadequate.

Stiebeling and Phipard, following the study of diets of families of wage-earners and clerical workers conclude:[73]

> With the dietary habits and the retail price levels of 1935 the level of food expenditure above which families were able to purchase adequate diets was different for each region. For white families the figure was $2.75 a week in North Atlantic cities; $2.70 in East North Central; $2.15 in East South Central; and $2.60 in Pacific cities. For Negro families in the South, the figure was $1.90 a person a week.

They go on to point out, however:[74]

> Of every 10 white families spending these amounts or more, only from 2 to 4 selected good diets. Among Negro families in the South, the proportion was a little over 3 families out of every 10.

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[70] M. M. Clayton, "A Study of the Food Habits and the Nutritional Status of Children in Selected Communities in Maine," Me. Agr. Exp. Sta. Bul. 391, 1938, p. 262.

[71] S. C. Agr. Exp. Sta. Bul. 300, pp. 9–10.

[72] *Family Living on Poorer and Better Soil,* Miss. Agr. Exp. Sta. Bul. 320, 1937, p. 16.

Moser found Vitamin C consumption of a group of South Carolina families to be low in the spring. S. C. Agr. Exp. Sta. Bul. 319, p. 28.

[73] *Op. cit.,* p. 100.

[74] *Ibid.*

Cost standards can also be secured by pricing diets that represent various levels of adequacy.[75] The cost standards are then compared with the expenditures of families. Stiebeling and Ward, for example, report:[76]

> The retail money value of the food of the majority of families in the United States in the years 1922 to 1929 was between the values of the minimum- and moderate-cost adequate diets. . . . When allowance is made for differences in price levels, the average money value of the food supply reported per family by approximately 3,000 farm families in 11 states fell between the retail values of these two diets. . . .
>
> The retail cost of the liberal diet corresponds to the amounts spent by families of skilled wage earners and of business and professional workers. . . . Families of lower salaried Federal employees in Boston, Chicago and New Orleans and those of semi-skilled wage earners in San Francisco were spending for food an amount midway between the retail values of the liberal and the moderate-cost adequate diet.

Wallace, former Secretary of Agriculture, reports:[77]

> The most frequent level of expenditure for food among the families from whom dietary records have been taken was found to be that ranging from $100 to $130 per capita per year (1935 price levels). About half of the families were spending less than $130 per capita per year. According to 1935 prices, a minimum-cost adequate diet could be obtained with careful food selections for just about $130 per capita per year. The inference is that the diet of half of the non-farm population probably fails to provide a desirable margin of safety over minimum requirements. At the lowest levels of expenditure for food the calorie intake is far below the average for the population and far below the probable need.

In using such cost standards it is important to remember that they are at best very crude. Furthermore, it is important when they are used with reference to a local community that they should be related to local food customs, prices, and household-production practices. It should also be borne in mind that many families do not have the education or the food preferences which for some families result in their securing an adequate diet at very low cost. The main excuse for using cost standards at all in rating adequacy of diet is that expenditure data are less expensive to secure than data on quantities of food.[78]

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[75] H. K. Stiebeling and M. M. Ward, *Diets at Four Levels of Nutritive Content and Cost,* U. S. Dept. Agr. Cir. 296, 1933, p. 31. For another attempt to develop a cost standard, see F. M. Williams and J. E. Lockwood, *An Economic Study of Food Consumed by Farm and Village Families* in Central New York, Cornell (N. Y.) Agr. Exp. Sta. Bul. 502, 1930.

[76] *Op. cit.,* pp. 4–5.

[77] *1937 Yearbook,* U. S. Dept. Agr., p. 105.

Percentage of the Total Income Going to Food

Over and over again expenditure studies reveal that the proportion of the income or expenditures for family living declines with rise in income. Studies also indicate that food in countries such as India, China, and Japan, with low per capita income, constitutes a large part of total national incomes. The historical trend as indicated by consumption studies of families of wage-earners shows a fall in the proportion going to food. (See Table 81.)

Table 81. Percentage of Total Family Expenditure Going for Food as Shown by Studies of Wage-Earning Families

Year	Investigator	Type of Family	Number of Families	Percentage of Total Expenditures Going for Food
1796	Eden *	English	73	73
1853	Engel †	Belgian		67
1829–1888	Cheyson and Toque ‡	German	100	57
1890–1891	U. S. Dept. Labor §	U. S.	2,562	41
1918–1919	U. S. Dept. Labor ‖	U. S.	12,096	38
1934–1936	U. S. Dept. Labor ¶	U. S.	14,469	34

* F. M. Eden, *The State of the Poor*, Vol. 3, 1797, Appendix 12.

† Ernst Engel, "Die Lebenskosten belgischer Arbeiter-Familien frueher and jetzt," *Bul. inst. intern. stat.*, Vol. 9, 1895, p. 42.

‡ E. Cheyson, and Alfred Toque, "Les budgets comparés des cent monographies de familles," *Bul. inst. intern. stat.*, Vol. 5, 1890, pp. 108–57.

§ U. S. Commissioner of Labor, *Seventh Annual Report*, 1891, p. 864.

‖ *Monthly Lab. Rev.*, August, 1919, p. 118.

¶ *Monthly Lab. Rev.*, August, 1940.

[78] Cost standards for appraising diets appear to be rather widely used in Great Britain. F. Brockington, "Further Observations upon the Influence of the Growing Family upon the Diet in Rural Districts," *J. Hyg.*, 38, September, 1938, pp. 547–57, reports, for example, that generally speaking, the lower the income the poorer is found to be the quality of the diets. Expenditures on milk averaged 60 per cent of the standard except in families of 5, 6, and 7 children, where it fell to 25 per cent. The money spent for meat, eggs, and fish exceeded the standard in higher incomes and smaller families but declined steadily in all groups as family size increased. Expenditures for fruits and vegetables were usually much below the standard.

These are facts of great importance to the food industries concerned. What light, however, do they throw on welfare? Are the people better fed if a smaller proportion of the total income goes to food? Such a conclusion does not seem to be valid especially when a comparison is being made between groups with quite different standards of living, for example, between nations or at different periods in the history of a given nation. A high percentage for food may also indicate that little apart from food needs be provided; thus a high standard of food may be associated with a very high proportion of income going to food.

A relatively low percentage going to food may indicate merely a strong desire for things besides food or high prices for housing, clothing, and other things. There are some people who feel that American families as a whole would be better off, and in that sense would have a higher scale of living, if a larger proportion of the total income went to food. Such a shift might be brought about, as has already been pointed out, by a more equal distribution of income. It could also be accomplished if relative preference for food in contrast with cigarettes, movies, silk stockings, automobiles, and other items, was increased. On the other hand, many opportunities exist for improving diets without changing the percentage of the national income going to food.

Adequacy of Food Supplies in Other Countries[79]

Few countries are so favored as the United States in the ratio of population to agricultural resources. With it can be classed Canada, Australia, New Zealand, British South Africa, and some South American countries. Of Europe and Asia, when wars rage and fear of famine abounds, it seems futile to say anything about food supplies. In Asia the specter of overpopulation, as seen by Malthus, has for centuries been in full view. In Europe, on the other hand, countries have found an outlet for their surplus population in the Americas and, in addition, found there a source of food supplies that could be drawn on through the exchange of manufactured products.

At the close of World War I, the food situation in many European countries changed. Need for self-sufficiency in time of war led to tariffs and bounties to encourage production at home. Dietary standards were modified; in some cases a tendency to greater variety was checked and the quality of the diet reduced somewhat even before the outbreak of hostilities. Reconstruction in Europe may bring a very different organization of resources. In many European countries, prior to the war, a discussion of means of improving diets gives considerable attention to such things as reducing tariffs, introducing modern methods of agriculture, including power machinery, and improving transportation facilities.[80]

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[79] See M. K. Bennett, "International Contrasts in Food Consumption," *Geog. Rev.,* Vol. 31, No. 3, July, 1941, pp. 365–76.

India provides an outstanding example of a country with very low nutritional health. "In the famine of 1901, the worst of recent years, one million people perished." [81] The death rate is high especially among children and child-bearing women. Deficiency diseases in extreme form occur, notably rickets in children and osteomalacia, an adult form of rickets, in women. Agriculture is the major industry, but the ratio of agricultural resources to the population is low. Mukerjee estimated that in India 48 million "average" men would be without food, if the others claimed "their normal daily ration." [82] Lacking industrial development, this country has not found it possible through international trade to secure food supplies from other countries. Better diet depends on population control, improvement of agricultural methods, breaking down of certain customs affecting quantity of food available, foods acceptable by the people, and food needs. Purdah, that custom that keeps women confined to their dwellings, shut away from the sunlight which is so important if the diet is low in Vitamin D, is an example of the last of these. Mukerjee says: [83]

> Defects [of the Indian peasants' diet] are rooted in the poverty of the people, the system of cropping in tiny holdings and the social and religious prejudices against the acceptance of cheap animal foods like fish, goat, mutton and eggs.

He further points out how customs have led in many districts to superfluous cattle: [84]

> In India the animal population is excessive and the uneconomical maintenance and multiplication of useless superfluous cattle, due to religious and humanitarian considerations, represent a problem that baffles the efforts of all social and economic reformers.

Considerable effort is being put forth at the present time to improve diets. A broad program of research and education has been launched, with government organization providing much of the leadership.[85]

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[80] N. F. Hall, *Measures of a National or International Character for Raising the Standard of Living*, *op. cit.*, p. 55, states: "The excessive protection of peasant populations and of obsolete methods of farming, which affords at the present time a substantial obstacle to these developments, serves only to retain what is generally recognized to be an unnecessarily low standard of living for the agricultural populations, and does so at the expense of the level of consumption of the industrial populations."

[81] Radhakamal Mukerjee, *Food Planning for Four Hundred Millions*, 1938, p. 35.

[82] *Ibid.*, p. 26.

[83] *Op. cit.*, p. 66.

[84] *Ibid.*, p. 131.

[85] For further discussion see N. Gangulee, *Health and Nutrition in India*, 1939.

18

Consumer Purchasing Practices

Even after consumers have decided what foods they wish to consume, they are confronted with many questions: Who should buy? Where and when should purchases be made? How to recognize the quality desired?

Food-purchasing practices of consumers are revealed both in methods used by sellers and in the behavior of consumers prior to, at the time of, and after purchasing. The significance of consumer purchasing practices must be appraised in the light of opportunities that exist for consumers to select products more wisely. Many factors affect consumer purchasing practices. Factors which may be very important are income level; facilities for buying, such as telephone and automobile; age of children; pleasure which family members derive from shopping; size of the family unit; amount and type of formal education; and informational facilities available. Consumer purchasing practices help to shape merchandising practices and in turn are affected by them.

Advice to Consumers in Their Purchasing [1]

Advice to consumers comes from many sources. That directed at increasing their efficiency in a broad sense pertains to two important objectives: first, to the economical use of consumers' time, energy, and money in a given market; and, second, to the promotion of better merchandising methods so that marketing costs and prices to consumers are lowered and wise selection among products facilitated. As a background to examining consumers' purchasing practices advice commonly given them is briefly summarized.

Practices That Save Time

1. If personal selection is important, buy at a nearby store.
2. Buy in large quantities so that frequency of purchase is reduced.

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[1] Representative advice to consumers is outlined here without any attempt to make it all inclusive. For more detailed discussion see D. Monroe, H. Kyrk, and U. Stone, *Food Buying and Our Markets,* 1937, especially Chapter 12.

3. Order by telephone and use delivery service and credit facilities.
4. Avoid shopping at rush hours.
5. Before ordering make a list of things desired with specifications noted, so that selection may be made or the order given quickly and the possibility of mistakes minimized.
6. Select a dependable store and concentrate purchases there, reducing to a minimum the amount of shopping from store to store.

Practices That Save Money

1. Weigh carefully the qualities you desire in a food and buy that which will give you the greatest return for your money; for example, evaporated milk may be a satisfactory substitute for fresh milk for many uses, and cooked cereals for many ready-to-serve cereals.
2. Remember small savings on articles purchased frequently make large yearly savings.
3. Acquaint yourself with characteristics that indicate quality of food to be selected or the meaning of grades or standard descriptive terms used in the market, so that you can make a personal selection of products and free yourself from reliance on selection by brand or dependence on advice received in the store. If the product is one reported by a testing agency, such as Consumers' Union or Consumers' Research, check ratings before buying.
4. Buy the most economical quality for each separate use to which a food is to be put. For example, a quite different quality of orange is suitable for juice than for salad.
5. List not only those foods needed immediately but also staples to be bought if prices are especially favorable. Make only tentative decisions about the purchase of products whose price is likely to fluctuate greatly from week to week, for example, fresh fruits and vegetables.
6. Before going to the market get information about prices from advertisements, marketing reports, and other sources. Get information on price in the store and compare relative prices before buying.
7. Shop widely and make careful and extensive price comparisons before selecting a store for general purchasing of groceries or any other type of food. In addition, shop around for price specials. Study policies of stores in order to know when, where, and in what foods to expect sales.
8. Buy food in season; increase consumption at height of season or buy to store for later use.
9. Buy in the most economical quantity, inquiring as to discount for purchases by the case; for example, if price offers for such quantities are not announced by the store.

10. Make price comparisons in terms of standard units; carrots, for example, by the pound rather than by the bunch, and eggs and oranges by the pound rather than by the dozen, and canned tomatoes by the pound rather than by the can.
11. Investigate price differences of bulk and packaged foods.
12. Examine the product carefully before buying, read information on labels, and make comparisons with other available products or with former purchases. Exercise special care with a "price special" because poorer quality and smaller than customary containers are often used.
13. Watch the scales and weigh the product at home in order to see that short weight has not been given.
14. Add up the items in your order and count your change in order to see that you are not being overcharged or short changed.

Practices That Promote Changes Desired in Marketing Methods [2]

1. Before buying, ask for information about quality and indicate that you are interested in having it in standard terms so that comparison is possible.
2. Request information on price per standard unit, for example, price per pound rather than price per package.
3. Report to the manager rather than to a clerk the improvements you would like to see effected.

Practices That Serve To Lower Marketing Costs

1. Increase the quantity of a product purchased at any one time.
2. Increase the total amount spent on any one visit to the store.
3. Know what is wanted before going to a store so that time spent with the clerk is reduced to a minimum.
4. Do not ask for special delivery or the delivery of articles that could readily be carried.
5. Pay bills promptly.
6. Avoid rush hours.

Efficiency of Consumers

Such are the rules that are commonly laid down to guide consumers in buying food. How nearly does such advice come to describing behavior? How large is the gap between what people "should" do and what they actually do. Scattered studies throw some light on this question, but a great deal of ignorance exists concerning how people purchase their food supplies.

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[2] Many practices already listed might be repeated here.

In appraising consumer behavior it is important to bear in mind that the market is far from perfect in providing means for consumers to buy efficiently and, furthermore, that food is only one of the many things that are purchased; also that buying, measured in terms of time given to it, is a relatively unimportant task, often being crowded into spare moments. Since consumers buy a great variety of products, they cannot possibly be very expert on many; they are likely to have only a very hazy notion of prices in places where foods might be secured. Consumption is carried on in family units; hence buying of necessity must be small scale in comparison with that of a hotel or hospital for example. When the unit of purchase is small, a low limit is placed on the saving possible from large-scale purchase and on the extent to which shopping, comparisons, and the acquiring of knowledge is worth while.

Criticisms of consumer purchasing practices come largely from retailers and from those especially concerned with the families' attempt to get the most from their food dollar. Things commonly emphasized include failure to plan and to investigate before coming to the market and failure to use reliable sources of information, the frequency of small-quantity purchase, the "excessive" demands for free services, and the failure to examine the product or get what information possible in the store. Frequent mention is made of a tendency to impulsive buying, to accept slogans and sales appeal without asking: "What are the facts?" Some criticisms seem to assume that consumers should continue to behave as in the days of our fathers, present-day consumers being, at times, compared with pioneer families who are pictured as making a half yearly visit to a distant town and laying in a store of staples. The shift to small quantity purchasing is by contrast held to be very wasteful. It is very important that any evaluation of consumer practices should be made in terms of present facilities and costs.

Sources of Information about Consumer Purchasing Practices

Studies of merchandising tell much about consumer purchasing habits. In them are described how goods are sold and also what retailers and other sellers think about consumers—their practices and the circumstances affecting them. Many important facts are given in the U. S. Census of Distribution, especially the part dealing with retailing. They are especially valuable in indicating the type of store at which people buy and provide an all-over picture of a few buying habits, such as the use of credit. Although stores are classified by the census according to type of organization rather than by service, the separation of chains and independents gives some insight into consumer demand for services.

Many important questions concerning consumer purchasing practices can be answered only by directly studying consumer behavior. In doing so, three different methods are used: (1) The investigator may go to the stores and observe the behavior of consumer-buyers as they purchase foods. The data thus secured may in themselves be illuminating. In addition, they may be helpful in checking on what consumers say they do, unless consumers are followed to their homes for questioning. Purchasing practices cannot be related to income, except as stores are classified according to the level of income of the neighborhood in which they are located. (2) Investigators may ask retailers how their customers behave. This method may be useful in supplementing information secured from consumers, especially if consumers are likely to give a biased report or if they are not in a position to perceive their behavior. They do not know, for example, how much a price reduction is necessary or how long it must exist before purchasing is affected. (3) Investigators may visit homes and ask the members of the family responsible for the major part of the food purchasing how it is done. This method is advisable if a study is to be made of the influence of such factors as size of income, the day of week on which the pay check is received, the size and composition of the family, the working hours of members of the family, formal education, knowledge of prices, quality, and brands, sources of information used, possession of an automobile, proximity to satisfactory stores, and types of radio programs to which the family including the children regularly listen.

Many acts go to make up food-purchasing practices or many factors influence them. Probably no one investigation or research project would attempt to include all foods or even all factors affecting the method of purchasing any one of them. House-to-house surveys vary greatly in type of questions asked. One difference calls for special comment. In some cases facts on typical or usual behavior are sought, and in others behavior in most recent purchase or purchases. Answers bearing on the latter are likely to be more accurate since the behavior involved is recent; and when single practices are reported no judgment of average or typical behavior needs to be made. In addition, with an adequate sample, a full array of consumer behavior is revealed. Since behavior in most recent purchases probably varies more than typical behavior, it may be necessary to have a larger sample of consumers than if questions are confined to usual purchase.

At a few points fairly precise and comprehensive data are available concerning consumer purchasing practices. At other points the picture is incomplete. A few snapshots, as it were, can be presented. In many cases there is no check on how representative the data are from various income groups, cities, or regions.

Sources of Information Used by Consumers

One of the blind spots in the picture of consumer purchasing practices is the sources of information used by consumers before they go to buy. During recent years a considerable increase has occurred in sources provided, but relatively little is known of their use by various families. An increasing number of families receive the reports of Consumers' Union and Consumers' Research, with moderate-to-high-income families being more fully represented than low-income families and with many subscribers among the professional group. It is not known the extent to which food information in the reports from these testing agencies is studied and used in current buying. Consumer education through schools and adult classes is reaching an increasing number of persons. Little is known of the use made of information dispensed there which pertains to buying practices.

A few cities provide a consumers' service, consisting largely in information concerning current local prices; the prices prevailing in the market where housewives may buy "this morning."[3] Attention is mainly concentrated on foods having important seasonal change in price.

> Programs bearing the name, "Federal Food Reporter," or some similar title, have been inaugurated in Boston, Philadelphia, Baltimore, Cleveland, Cincinnati, Chicago, Kansas City, Oklahoma City, Denver, and San Francisco. The coverage, however, is actually broader than indicated by the number of cities from which the broadcasts originate. From Boston, for example, the consumer program goes over the Colonial Network twice a week, and from Kansas City it is carried by the Kansas State Network daily. In Chicago,

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[3] *Consumers' Guide,* November, 1940, pp. 11–2. "Two o'clock in the morning of every market day except Saturday, 2 reporters from the New York Bureau of Consumers' Service scout the wholesale markets for fruits and vegetables. Trained observers, these market reporters spot the arrival of these perishable foods in New York's markets. . . . At six o'clock, these scouts know accurately the state of the wholesale markets and, therefore, of the supplies that will be found in retail stores the same morning. Along about 8 A.M. a flash comes over the telephone from the wholesale fish market on that morning's supply of fresh fish. When all this news has been assembled and prepared in script, at 8:25 the Director of the Bureau of Consumers' Service goes on the air for 5 minutes to talk to New York's housewives.

"While retail prices are not usually reported to consumers on the air, the Bureau of Consumers' Service does collect them. Each afternoon 2 inspectors go out from this Bureau to call at some 15 to 20 stores in each of two districts in the city. They make note of the prices charged consumers . . . The purpose of this price collection is to see whether prices do actually follow the changes in food supplies noted in the wholesale markets."

Somewhat similar services are available in a few other cities, for example, Boston.

> two stations carry consumer market broadcasts, one of them presenting information in three foreign languages.
>
> The homemaker does not have much opportunity to haggle about the price she pays. But she is able to look out for her interests when she is aware of the extent of supplies. If carrots, for example, are plentiful and relatively cheap, she wants to know it. In this way she will use them and thus do her part to prevent the accumulation of market surpluses, and to improve the diets of her family.[4]

Some newspapers have found enough interest from housewives in such facts to warrant a weekly column on retail food prices. Consumer information centers are now being set up in many cities as part of the war program. These are among the straws in the wind, as it were, that indicate increasing attempts to be better informed in buying. Little is known, however, as to what income or occupational groups make most use of such facilities.

Retailer and brand advertising constitute very different sources of information to aid consumers in their buying. Brand advertising of food gives little information to aid consumers in their market selection, other than advice to buy by brand name. Its influence on selection will be considered later. Retailer advertising on the other hand may be a very important source of price information and gives some facts about quality, especially in cases of seasonal foods. In Table 82 are the findings of one study reporting the extent of regular reading of grocery-store advertising

Table 82. Percentage of Families (1) Reporting Regular Reading of Grocery-Store Advertising and (2) Buying Specified Foods on Sale; Classified by Income Group *

Income Level	Percentage of Families Reporting				
	Reading of grocery-store advertising	Buying on special sales			
		Canned foods	Other groceries	Coffee	Butter, fruits, and vegetables
Upper	42	52	37	10	6
Upper-middle	58	57	44	17	7
Lower-middle	62	55	47	23	11
Lower	64	56	52	30	16

* A. C. Nielsen, *Solving Marketing Problems of Food Retailers and Manufacturers*, pp. 27 and 28.

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[4] Report of the Chief of the Agricultural Marketing Service, 1941, p. 12.

by families of the various income groups. The percentage varies inversely with the income.

Planning Foods in Relation to Use

Consumers are commonly advised to buy more than one quality even though the more expensive quality would be satisfactory for all purposes. In other words, they are to consider the various uses and buy the quality most economical for the use to which it is to be put. Some people are of the opinion that a great deal of saving is possible if "quality" no higher than necessary for the intended use were purchased. How, in fact, do consumers act? Liston, at the end of a survey in a city in Vermont, reports that out of 118 families representing various income groups 108 bought all-purpose butter and eight bought different brands for table and for cooking; while two used butter for the table and oleomargarine for cooking. In addition one-sixth of the housewives stated that they bought better eggs for the table than for baking; these were distributed in all income groups.[5] A slightly higher percentage of housewives, reporting in a survey made in Providence, R. I., stated that a less expensive egg was used for cooking purposes; 29 per cent in 1928, and 36 per cent in 1932.[6]

Who Does the Buying?

To whom should education in buying be directed? Obviously the housewife in most families is the person of major importance. However, in many families all members share to some extent in the activity.

"The housewife does the buying for 90 percent of all families for regular and usual purchases." [7] So reports the Nielsen Food Index Service following a survey, made in the Eastern states, of 2,333 housewives.

Amburgey and Coles after a survey of 460 Missouri homemakers on farms and in small villages and cities of less than 50,000 report that "The homemaker bought or helped to buy staple groceries and fresh fruits and vegetables in three-quarters of the families, the meat in two-thirds, and the milk in over one-half." They found the percentage of homemakers doing the buying to be higher in urban than in rural communities.[8]

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[5] M. I. Liston, *Study of Quality Demands in Household Buying of Food*, Vt. Agr. Exp. Sta. Bul. 415, pp. 6 and 14.

[6] R. I. Agr. Exp. Sta. Bul. 240, p. 15.

[7] A. C. Nielsen, *Solving Marketing Problems of Food Retailers and Manufacturers*, p. 22.

[8] "The Buying Habits of Missouri Homemakers," *J. H. Ec.*, Vol. 26, January, 1934, p. 19. Similar findings are reported by A. Jannett and M. Williamson, "Food Buying Practices," *J. H. Ec.*, June, 1937, pp. 377–8.

Most studies on "Who does the buying?" have asked for the general role of members in food buying. One study, however, secured detailed records of all food purchases over a period of four consecutive weeks. Reports on 6,502 visits to stores were secured. The women of the families made 51 per cent of the total purchases, the men 10 per cent, men and women shopping together 0.5 per cent, and children 48 per cent."[9] In this case, composition of the family and educational experience probably was largely responsible for the buying pattern reported. All the families had children in high-school classes in home economics and commercial education.

Where To Buy

"Where to buy?" is probably one of the major questions facing consumers. The question relates to both regular and occasional purchases, to the purchase of food supplies in general, and to single types of food. Many things will influence the importance attached to price differences noted and to the services offered by various stores. Only rarely do several families club together and buy at wholesale. Some consumers' cooperatives have been begun in this way.

Some Price Differences among Stores

A brief comment on price differences among stores is helpful in indicating the possible advantage of systematic study. Consumers for the most part live in communities where considerable money saving is possible by buying at one store in place of another, especially if they are willing to dispense with certain services, although it so happens that prices are higher in some "non-service" than in nearby "service" stores. The more a consumer shops around from store to store for single products the greater is the possibility of saving money. Because of the time involved there is a definite limit on the extent to which such shopping is worth while. The smaller the size of purchase the more quickly is this limit likely to be reached.

The findings of a few studies relating to price differences in retail food stores are of interest. One study reports that in 17 out of 38 shopping districts, in each of which prices on 20 foods were secured on a given day, the low price on single articles averaged 11 to 15 per cent less than the high prices; and in 9 districts the difference was even greater. In 8 of the 12 districts, each with 7 to 9 stores, the low prices were 16 per cent below the high price. Some of this difference was caused by a special price in one store and not in another; however, important differences on the regular price of single foods between stores within a small shopping area were reported.[10]

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[9] I. R. Everett, "Who Buys the Family Groceries," *J. H. Ec.*, February, 1940, pp. 96–8.

Retail stores offering credit and delivery services have been compared with others. Cover secured price quotations in 54 cash-and-carry food stores in one city and 34 in another; and 18 credit stores in one city and 17 in another. Of the 20 food items priced, cash stores undersold credit stores in all but one instance in one city and 2 cases in the other.[11] One study reports the relative level of prices, with stores classified by services provided. See Table 83. Service stores, in contrast with cash-and-carry, more frequently have higher prices. This difference may not hold in the individual cases, even though the probability is high that a service store will have higher prices than a nearby cash-and-carry. A consumer, not caring for credit and delivery, must investigate the prices in the stores which she is considering patronizing.

Table 83. Percentage of Stores, in a Specified Price Class, According to Services Offered; 38 Shopping Districts in New York State *

Items	No. of Stores	Percentage in Each Price Class		
		High-priced	Low-priced	Intermediate-priced
Delivery				
Free delivery for all purchases	97	33	4	63
Limited delivery	67	7	27	66
No delivery	46	2	35	63
Credit				
Credit to all customers	54	52	2	46
Credit to a few	46	11	11	78
No credit	110	5	29	66

* Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, pp. 34–5. The relative price level of each store was appraised in terms of the prices in store within the same shopping district.

Prices of foods tend to vary with the income level of the district in which the store is located. Findlen, for example, reports that in any area prices for U. S. No. 1 potatoes were slightly higher than for lower grades, and that potatoes of comparable grade sold for higher prices in stores in high- than in low-income areas.[12]

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[10] Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, 1936, pp. 24–5.

[11] John Cover, *Retail Price Behavior,* Univ. Chic. Studies in Bus. Adm., Vol. V, No. 2, 1935.

Prices often differ between neighborhood and shopping districts. One study reports, for example, "Index numbers of prices averaged 97.3 for the downtown, 99.4 for the secondary and 102.5 for the outlying stores." [13]

Repeatedly studies have shown that grocery chains on the average undersell independent stores. At the same time many of these studies report that some independents are matching the price of chains and at times underselling them. Typical findings are those of a recent Vermont study: "Prices quoted by chains averaged 12 percent and by voluntary chains 1 percent below those of independents." [14] This study shows that the chain stores achieved this lower level of prices through regular offers rather than through sales—the frequency of their specials and the extent of the price reduction was less for chains than for independents.[15]

What Determines Choice of Food Store

A widespread system of grocery stores provides ample evidence that many families place a high value on convenience of store. Some indication of the relative importance of certain factors for families at different income levels is given in Table 84. In appraising the relative importance of reasons given for choice of store, it must be borne in mind that such things as a fairly clean, tidy store may be taken for granted and thus not mentioned as a reason determining choice. According to this survey, as income declines delivery becomes less and less important and provision of credit becomes more important. High-income families probably place credit rather low among the things taken into account, since credit wherever granted is available to them.[16] Support for this assumption is provided by data in Table 85. In this survey families with incomes over $5,000 are the important users of both credit and delivery, but relatively more families

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[12] P. J. Findlen, "Consumer's Incomes and Retail Merchandising of Potatoes," *Farm Econ.* (N. Y. College Agr.), No. 119, June, 1940, pp. 2964–8.

[13] D. D. Nuetzman and M. Muse, *Price Variations among Retail Grocery Stores of Burlington, Vermont,* Vt. Agr. Exp. Sta. Bul. 466, 1940, p. 2. See also J. Cover, *Retail Price Behavior,* Univ. Chic. Studies in Bus. Adm., Vol. V, No. 2, 1935.

[14] D. D. Nuetzman and M. Muse, *op. cit.,* p. 2.

[15] For extensive comparison of prices in chain and independent stores and criticism of methods commonly used, see M. G. Reid, *Consumers and the Market,* 1942, Chapter 16.

[16] M. E. Reigel, "Food Buying Practices," *J. H. Ec.,* June, 1937, pp. 379–82, secured information from 44 homemakers with moderate incomes in a town of 5,000 and from 72 high-school pupils in four towns. Both these groups put physical condition of the store first. The homemakers put kind of service given second; type of sales person and quality of food had equal rating and came next.

*Table 84. The Average Ranking, for Sixteen Important Cities, of Each Specified Reason Underlying Choice of Grocery Store; Families Classified by Income Groups **

Reasons †	Average Ranking of Each Reason for Each Income Group		
	High	Moderate	Low
Convenient location	1.0	1.0	1.0
Best values	2.7	2.6	3.4
Best quality	3.0	3.1	3.0
Lowest prices	4.0	3.6	2.9
Delivery	5.2	6.4	7.7
Most complete stock	5.9	5.5	5.7
Clean, well arranged	6.8	7.0	6.6
Charge account	7.4	6.8	5.7

* Scripps-Howard Newspapers, *Market Records, Buying Habits and Brand Preferences of Consumers in Sixteen Cities*, 1938.

† Percentages of separate reasons add to 100.

*Table 85. The Percentage of Families Expressing Preference for (1) Charge Accounts and (2) Phone and Delivery Service; by Income Classes **

Annual Income Class	Percentage Desiring		
	Charge accounts	Phone and delivery service	Clerks' services
Upper (over $5,000)	37	41	81
Upper-middle ($2,000–$5,000)	14	25	69
Lower-middle ($1,000–$2,000)	7	9	62
Lower (under $1,000)	9	2	57

* A. C. Nielsen, *op. cit.*, pp. 24–6.

in the lowest income group use credit and fewer use delivery than in the lower-middle income group.

Another study involving an extensive survey shows convenience of location to be important at all income levels, but the higher the income the less important it is. For example, 51 per cent of the families with annual income over $5,000 and 71 per cent of those with incomes under $2,000 gave "convenient location" as the reason for use of the nearest grocery store usually used. In the highest income class 37 per cent and in the lowest class 12 per cent of the families reported that the nearest grocery store usually patronized was over one-half mile from their residence.[17] Use of delivery service and family automobile would in large part account for this difference, plus the fact that many high-income families live in districts zoned to exclude stores.

In one study 50 per cent of the consumers gave "quality" as the reason for preferring the independent store which was regularly patronized in purchasing meat, and about 25 per cent gave this reason in explaining their regular patronage of an independent store in purchasing groceries and produce.[18]

Reasons for buying at chain and independent stores, as reported by middle-income families in the New York Metropolitan area, are given in Table 86. Of the group questioned, 1,064 bought from chains and 1,629 bought from independents. Nearness and personal attention received were the most important factors reported as reasons for patronizing independents, whereas price was by far the most important reason reported for patronizing chains.

In another study covering all income classes the percentage of families mentioning convenience of location as the reason for regular use of grocery store was higher for the chains than for the independents. (See Table 87.) In the absence of delivery service location, of course, assumes a greater importance. Chain stores rank high in the percentage reporting patronage because of regular low price, and independent stores rank high in percentage reporting patronage because of high quality. Chains are, however, not without adherents because of quality of goods, and some independents attract patronage because of regular low price. Private brands, although in general unimportant as a reason for patronage, were more important for the chains than for the independents. Special sale prices are a more important factor for occasional than for regular use.

The findings of a *Fortune* survey present a sharp contrast with Nielsen's study comparing reasons for patronizing chains and independents. People were asked, "Do you generally buy most of your groceries at chain

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[17] A. C. Nielsen, *op. cit.*, p. 23.

[18] *Ibid.*, pp. 44–5.

Table 86. The Percentage of Families Reporting Specified Reasons as Factors Determining "Regular" Patronage of Chain and Grocery Independents; Middle-Income Families in Metropolitan New York *

Reasons	Percentage of Families Mentioning Each Reason	
	Chains	Independents
Nearest to home	30	43
Prices are lower	67	7
Receive personal attention	10	39
Clean store	19	17
Carry better quality	16	17
More attractive appearance	13	4
Number of persons reporting purchase of food and groceries	1,064	1,629
Number of reasons given	1,646	2,082
Number of reasons given per family	1.5	1.3

* L. Bader, "A Survey of Consumers' and Independent Store Owners' Reactions to Recent Price Legislation," *J. Marketing*, Vol. 4, July, 1939.

Table 87. Percentage of Families Mentioning Each Reason for Patronizing Those Grocery Stores Used Regularly and Occasionally *

Reasons	Regular Use		Occasional Use	
	Chains	Independents	Chains	Independents
Convenient location	47	35	44	42
Special sale prices	25	10	30	13
Regular low prices	42	24	18	14
Variety	21	22	9	14
Quality goods	18	34	4	14
One item	2	2	7	7
Personnel	20	22	6	7
Private brands	4	1	6	1
Fresh goods	12	23	2	8
Regular brands	9	4	5	3
Reliable	9	17	3	3

* A. C. Nielsen, pp. 36-7.

stores?" "If yes, for which reason." The relative frequency of various reasons given are:

Reason	*Percentage*
Better prices	62.4
More convenient	19.7
More variety	6.8
Better quality	5.3
Better services	5.0
Don't know	0.8

"Not only the overwhelming bulk of the poor but a majority of the prosperous give price as a reason."[19]

Importance attached to price level is likely to vary with desire to economize. For families in general this tends to vary with phases of the business cycle. A study made of store preference by the *Cleveland Press* in 1932 and 1936 reports that, in 1932, "price" accounted for 31 per cent of all reasons given for preferring one store in place of another; whereas, in 1936, it accounted for 20 per cent. In 1932, "quality" accounted for 12 per cent of the store preference, and, in 1936, it accounted for 22 per cent.[20]

Place of Purchase

Reasons why one store rather than another comes to be chosen have already been considered. Each week, however, many families in buying food do some shopping around. One study, for example, reports shopping to be most extensive for vegetables, next for meat, and least for groceries.[21] Families may select one or more stores for regular patronage for food supplies in general or select one for groceries, one for fresh fruits and vegetables, and another for meat and, in addition, may keep an eye on several other stores for possible bargains.

The advantage of any one store is likely to vary with type of product. For example, the Nielsen Food Index Service reports that 71 per cent of the families regularly buy groceries from chains and 54 per cent regularly buy from independents;[22] whereas for the regular purchase of produce the percentages were 53 for chains and 67 for independents, and for meat 38 and 73 per cent, respectively. Only 8 per cent of the families reported regular use of meat and/or produce departments of chains without regularly buying groceries; whereas 56 per cent of the families reported regular use of the produce and/or meat departments of independents without regularly purchasing groceries.[23]

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[19] *Fortune,* January, 1937, p. 154.

[20] "National Brands Gain," *Printer's Ink,* Apr. 8, 1937, p. 70.

[21] F. E. Croxton, *Study of Housewives' Buying Habits,* Ohio State Univ. Stud., Vol. II, No. 16, Bur. Bus. Res. Mono. 3, 1926, p. 13.

[22] The extent to which these two figures exceed 100 per cent is a measure of the percentage of families reporting the purchases of groceries regularly from both chains and independents.

Patronage of stores appears to be fairly stable although it may include several stores. "When a family becomes a regular customer of a store, the chances are approximately four to one that the business will be held for a period of more than two years." [24] The stability appears to be much the same for chains as for independents. Half the families reporting use three or more grocery stores regularly. For those who regularly buy at chains, 53 per cent regularly use only one. For those who buy at independents, only 31 per cent regularly use only one store.

A major change in food retailing in recent years has been the introduction of the supermarket, which stresses the economy to be secured from cash-and-carry, self-service, and multiple-unit purchases, going some distance so that high rent area is avoided. During recent years, also, there has been a marked expansion of consumer cooperatives in both urban and rural communities. These also emphasize the possibility of savings. Actual place of purchase has been studied very little for the various income groups. A study made in certain localities in Canada indicates that families with incomes between $1,000 and $2,000 purchased a larger proportion of their cheese from chain stores than did either those having higher or those having lower incomes. The concentration of purchases by relief families at the independent retailer was especially marked.[25] Similar findings are reported by Vaile in the Twin Cities: [26]

> Chain stores represent 21 percent of the total number of grocery stores in districts where incomes range from $2,500 to $4,000. This compares with only 11 percent for the city as a whole, and 6 percent in the lowest income districts.

Family practices in buying foods from farmers, huckster, fruit stands, and other such sources have been studied to a limited extent. The place of purchasing oranges and grapefruit in Baltimore indicated no consistent difference with income, although the use of fruit stands for both oranges and grapefruit was especially high for the lowest income group. (See Table 88.) In New York City push carts, peddling fruits and vegetables, are patronized to a large extent by low-income families. The operation

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[23] *Op. cit.*, pp. 34–5.

[24] *Ibid.*, pp. 31 and 33.

[25] G. P. Boucher and W. C. Hopper, *An Economic Study of Cheese Consumption in Certain Urban and Rural Districts in Canada*, Dom. Can. Dept. Agr. Pub. 658, Tech. Bul. 22, 1939.

[26] *Grocery Retailing*, Univ. Minn. Econ. and Bus. Stud. 1, 1932, p. 14.

Table 88. The Number of Households Reporting Purchase of Oranges and Grapefruit from Fruit Stands and from Hucksters for Every 100 Reporting Their Purchase from Grocery Stores; Households Classified by Weekly Income, Baltimore, 1936 *

Weekly Income of Household	Number of Households Reporting Purchasing from Specified Dealers for Every 100 Purchasing from Grocery Stores			
	Oranges		Grapefruit	
	Fruitstand	Hucksters	Fruitstand	Hucksters
$ 0 –$ 9.99	148	65	133	42
10.00– 19.99	84	36	100	41
20.00– 29.99	109	92	89	104
30.00– 39.99	51	81	67	80
40.00 and over	72	40	81	50
All	89	60	82	66

* Consumers' Counsel Division, A.A.A., U. S. Dept. Agr., *Consumption of Citrus Fruit and Related Products in Baltimore and St. Louis, op. cit.*, p. 39. A total of 215 households reported the purchase of oranges from food stores. For grapefruit the number was 123. Data were also provided for St. Louis, where fruitstands and hucksters are apparently much less important. The general pattern of buying seems to be the same.

of them has been considerably restricted recently, supposedly to reduce street congestion. This change will affect low-income families more than any other group.

The percentage of families reporting the purchase of eggs from farmers in Providence, R. I., is much the same for almost all the income districts, except that the district with the lowest average income has the smallest proportion reporting the purchases of eggs from farmers. This would suggest that the purchase of eggs from farmers is made in an attempt to secure better quality. The proportion of families in the high-income district, purchasing eggs from the "downtown market," is much higher than that for any other district. The proportion of families purchasing eggs from farmers and from the "downtown market" was considerably higher at all income levels in 1932 than it was in 1928.[27] Purchase of produce directly from farmers is likely to vary inversely with the size of the city. Even in some moderately large cities such sales may be quite important.[28]

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[27] R. I. Exp. Sta. Bul. 240, p. 8.

[28] In 1930 in Albany, N. Y., for example, farmers who delivered eggs to city homes supplied 36 per cent of the eggs consumed. See Cornell Exp. Sta. Bul. 586, 1934, p. 28.

In general consumers' cooperatives in their development have made their great appeal among the middle income groups. Purchases at consumers' cooperatives in England, where they constitute a very important part of the retail system, are reported to be relatively unimportant among both the high- and the very low income families.[29]

The place at which food is purchased by farm families has been studied to only a limited extent. One group of farm families in New York State traveled on the average a distance of 4 miles to purchase bread and butter, and 5 miles to purchase flour and milk.[30] Since this study was made, supermarkets have developed. Another study of 2,940 farm families in New York State reports that 57 per cent of those who reported buying practices bought most of their groceries at independent stores and traveled approximately 3.8 miles for them; whereas 43 per cent patronized chain stores and traveled on the average 5.8 miles to reach them.[31]

"Rolling" stores are bringing the grocery store to the door of some farm families.[32]

Use of Credit

It has already been pointed out that high-income more frequently than low-income families prefer a store that grants credit. The importance of credit varies greatly with the type of food store. (See Table 89.) It is relatively low for those specializing in fruits and vegetables and for bakeries and caterers and is especially high for those selling dairy products. One cannot but wonder whether lack of price competition in the sale of dairy products has led to the liberal granting of credit. One study reports urban more frequently than rural families using credit. The use of credit is associated, of course, with delivery service which usually is not available to farm families.[33]

In general families pay their food bills somewhat more promptly than those for other items. In 1937 grocery accounts were outstanding 42 days in contrast with 63 days for all store bills. The average monthly collection of grocery bills was 71 per cent in contrast with 48 per cent for all kinds

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[29] See Sir W. Crawford and H. Broadley, *The People's Food,* 1938, p. 102.

[30] Helen Canon, *Sizes of Purchasing Centers of New York Farm Families,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 472, 1928, p. 8.

[31] E. A. Taylor, *The Relationship of the Open-Country Population of Genesee County, New York, to Villages and Cities,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 583, 1935.

[32] For example, M. Fish, *Buying for the Household,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, 1933, p. 78, found that 6 per cent of 368 farm households in New York State, visited in 1928–1929, reported that groceries were delivered.

[33] A. Jannett and M. Williamson, *op. cit.* See also Cornell (N. Y.) Agr. Exp. Sta. Bul. 561.

Table 89. Percentage of Credit and Cash Sales in Various Types of Food Stores, 1935 *

Kind of Business	Percentage of Sales	
	Open account	Cash
Bakeries and caterers	7.7	92.3
Dairy products stores and milk dealers	58.8	41.2
Grocery stores without meats	15.9	84.1
Grocery stores with meats	23.2	76.8
Meat markets	15.5	84.5
Fruit stores and vegetable markets	5.9	94.1
All food stores	21.1	78.9

* U. S. Bur. Census, *Retail Distribution. Census of Business 1935*, Vol. I.

of purchases. The percentage of bad debts from credit sales is much the same for grocery as for other accounts.[34]

When To Buy

The problem of when to buy varies greatly from family to family. Behavior has been little studied. It is a mixture of many things, including inclination and ability to plan ahead, extent of storage space, perishability of product, availability of funds or credit, and variation in price from time to time.

Planning the Disbursement of Funds

The allotting of funds by low-income families, so that money is available for food from one pay day to another, has been given some attention. Cowles for example reports:[35]

> While the system of caring for the nutritional needs of the marginal or submarginal family may be worked out with extreme care in a central office and administrated adequately in the field, its effectiveness is after all limited and to a considerable degree determined by the way in which the individual family manages either the food issued directly or the money which it has to spend for this purpose. Consequently the field workers were asked to observe and record any evidence of the degree of managerial skill of the family which

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[34] Bur. For. and Dom. Com., *Retail Credit Survey, 1937,* Dom. Com. Series 103, pp. 17 and 25.

[35] May L. Cowles, *Food Consumption of Wisconsin Relief Families,* Wis. Agr. Exp. Sta. (Stencil) Bul. 1937, pp. 15–6.

> might throw light on the solution of food problems. A common form of mismanagement among the commodity relief families was eating overplentifully during the early part of the two weeks after the order was issued and "coming out short" during the latter days of the period. . . .
>
> Another type of mismanagement frequent among the work relief group was hand-to-mouth buying, usually daily, with obviously no planning ahead as to how the money should be spent. . . .
>
> Examples of more careful management, however, are not lacking among these families. Many of them actually planned ahead so as to buy staples for a week. A number of them spoke of watching for special sales and comparing prices carefully.

Purchase in Relation to Pay Day

Food purchases are probably less influenced than the purchase of many other types of goods by day of week on which pay is received. Even so, 41 per cent of the families of a group of factory workers in 15 cities reported that small items such as food and drugs were most likely to be purchased on pay day or immediately after it. At the end of the second day only 25 per cent of this group of families had left as much as 26 per cent of the money received on pay day.[36]

Day of the Week When Purchases Are Made

The day of the week when foods are used, especially those which are perishable, will affect the day when they are purchased. During the week-end, "luxuries" on the menu are likely to be more common than on other days. Cream purchases thus tend to peak up on Saturday and Sunday.[37] The consumption of cottage cheese, a substitute for meat, tends to be relatively high on Friday, at least among Catholic families. An increase in demand is reflected in the Friday sales.

These facts about consumer purchasing are of great interest to sellers but throw no light on peculiarities of purchasing practices apart from the fact that they are related to final use.

Customary pay day, concentration of specials, and retail stores being closed on Sunday all combine to concentrate purchases at the end of the week.

A study of purchasing practices made by Scripps-Howard, covering thousands of families in 16 large cities throughout the United States, shows a marked concentration of food purchasing on Saturday, with Monday as a low spot. (See Table 90.) In this study families were grouped in three income classes. There seems to be a slight tendency for low-income in contrast with high-income families to purchase a smaller proportion of their supplies on Saturday and a somewhat larger proportion of them on Monday.[38]

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[36] *Monthly Lab. Rev.*, "Spending Habits of Factory Workers," January, 1939, pp. 104–5.

[37] See, for example, H. H. Sommer, *Market Milk and Related Products*, 1938; and "Day-of-the-Week Variations in the Sales of Milk and Cream," Me. Agr. Exp. Sta. Bul. 399, 1940, pp. 125–6.

*Table 90. Range in Percentage of Weekly Food Budget Spent by Families, in 16 Cities, on Each of the 7 Days of the Week**

Monday	7.6–11.9
Tuesday	9.5–11.8
Wednesday	10.4–12.8
Thursday	9.3–12.0
Friday	11.5–15.2
Saturday	33.5–46.6
Sunday	2.3– 4.7

* Scripps-Howard Newspapers, *Market Records: Buying Habits and Brand Preferences in Sixteen Cities,* 1938, Reports were secured from 53,124 housewives. Much the same findings are reported in the *Cleveland Kitchen Inventory, 1935.*

Another study reports nearly one-half of the urban and approximately two-thirds of the rural families bought the bulk of their food supplies on Saturday.[39]

Price Specials

Price specials offer those consumers who follow prices closely an opportunity to make considerable savings. Opportunity can be measured to some extent by the frequency and the extent of a markdown in price and of the range of commodities covered in the sales from time to time.

One study reports canned vegetables, canned fruits, and tea and coffee as the foods most frequently featured in sales.[40]

Prices announced as "specials" are not always markdowns for the regular price. One study reports:[41]

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[38] The percentage of the total food supplies that were purchased on Monday were ranked for the three income groups in the 16 cities and an average determined for each income group. The income group with the smallest proportion of food bought on a specified day was given the rank of 1. The average rank of the percentage of food supplies purchased on Monday was 1.6 for the highest income group, 1.8 for the middle income group, and 2.6 for the lowest income group. For Saturday the average ranking was 2.1, 2.2, and 1.8, respectively.

[39] A. Jannett and M. Williamson, *op. cit.,* p. 377.

[40] See, for example, Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, p. 14.

[41] L. Doman, *A Study of Price Differences in Retail Grocery Stores in New York State,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, 1937, pp. 7 and 9. The price comparisons were limited to goods advertised by grocers which could be presumed to be reduced in price for a limited period of time. Regular and sales prices on identical articles were collected for 6,358 sale offers, advertised during

> On 73 percent of the total 6221 unit and multiple-unit sale offers, the sale prices were lower than the regular price quotations on the same articles.

The percentages for chains, voluntary or cooperative chain stores, and independent stores were 67, 78, and 83 per cent, respectively, and the reductions on the sales offers were 14.4, 14.8, and 15.8 per cent respectively. The percentage price reduction was greater on the low- than on the high-priced foods.

In another study:[42]

> Two-thirds of all so-called price specials were found to be reduced from regular ones, the proportions being 36 percent for chains, 77 percent for voluntary chains and 85 percent for independents. The percentage of saving on the products reduced in price amounted to 12.2, 13.8 and 15.4 percent respectively in the three types of stores.

The average savings on all sale offers amounted to about 10 per cent of the regular prices on identical products, or 3.5 cents per offer.

Price specials on foods often take the form of combinations, lotteries, or premiums (included in the packages), or coupons that may later be redeemed. Such combinations increase the complexity of the price comparison between competing foods, thus in themselves reducing the likelihood of consumers' choosing wisely. In one study of grocery prices for one-half of the 43 premium offers which were investigated "the special price of grocery and premium articles combined was more than the regular price of the grocery articles alone; thus the premium was not absolutely free. . . . The sale prices on combination offers averaged 30 percent less than the prices quoted after the sale on the articles included. Reductions ranged from 3 to 53 percent."[43]

Price specials are now of one brand and now of another. Hence it is not strange that "greater advantage can be taken of sales if buyers do not confine their purchases to one or a limited number of brands. . . . However, lack of adequate information regarding grades on the labels of canned and packaged goods makes it difficult for buyers to judge as to the economy of buying the specially priced goods of unknown brand."[44]

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4 months in 1931 in 59 localities, ranging in population from less than 1,000 to approximately 560,000. In each locality prices were collected during a 3-week period.

[42] D. D. Nuetzman and M. Muse, *Price Variations among Retail Grocery Stores of Burlington, Vermont,* Vt. Agr. Exp. Sta. Bul. 466, 1940, p. 2.

[43] Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, p. 11.

[44] *Ibid.,* p. 44.

In this study the relative price reduction on the various type of brands, that is, national, private, and little-known brands, was much the same.

General sales and price specials tend to be concentrated to swell the weekend buying in spite of the fact that retailers complain about the high cost incurred during the periods of slack selling. For example, one study reports, "Twice as many items were found on special sale on Saturdays and a few more on Thursdays than on Tuesdays."[45] It is of interest that there was no difference in the number of sales found on Tuesdays, Thursdays, and Saturdays in chain stores; whereas in voluntary chains there were three and a half as many on Saturdays as on either of the other two days.

Patronage of Price Specials

The Nielsen Food Index, in its survey of 2,333 housewives in Eastern states, found the percentage of families reporting the reading of grocery-store advertising to vary inversely with the income. Apart from canned goods, the percentage of families reporting that they bought at special sales also varied inversely with income. (See Table 82.) When special sales are patronized, the quantity usually purchased by some families is relatively large. For example, 11 per cent of those buying as needed purchased more than one week's supply of canned goods; whereas for those buying on special sales 59 per cent reported the purchase of more than one week's supply.

Table 91. Percentage of Families Buying Certain Foods (1) as Needed and (2) on Special Sales and the Relationship of These to Quantity Purchased *

Food	Percentage of Families Buying		Percentage of Families Who Purchased Over One Week's Supply When Buying	
	As needed	On special sale	As needed	On special sale
Fruits and vegetables	90	10	1	4
Butter	90	10	3	16
Coffee	79	21	19	46
Canned goods	45	55	11	59
Other groceries	54	46	19	61

* A. C. Nielsen, *Solving Marketing Problems of Food Retailers and Manufacturers*, an address before the convention of the National Association of Food Chains at Chicago, Oct. 11, 1939, p. 29. This information was provided by the Nielsen Food Index Service. "Particular care was taken to maintain the correct distribution of interviews by income groups," p. 21.

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[45] Vt. Agr. Exp. Sta. Bul. 466, p. 2.

(See Table 91.) Special sales of fruits and vegetables induce only a few families to buy more than one week's supply.

Another study gives a rather different picture. One hundred housewives in the Chicago area were visited. The women were asked to keep a complete written account of all grocery purchases for one week, indicating each item purchased, brand name, store where item was purchased.[46]

> An examination of the detailed accounts of the women in the poor class homes, reveal . . . that . . . these women are apparently very unscientific buyers. First they rarely take advantage of sales, for the prices quoted on their lists are without exception top prices. Second, they buy only when they have both the need and the money, thus losing the savings that are possible when buying in quantity. Invariably they will buy one can of soup at 10¢ instead of two cans for 18¢.

In contrast with these findings, Nielsen's study, already reported, indicates a relatively high interest on the part of low-income families in retailer advertising that stresses price specials.

Savings Achieved through the Purchase of Price Specials

It is obvious that price specials afford means for families to economize. The extent of savings actually achieved by families through taking advantage of price specials has been very little studied. One study does, however, report a saving of 21 per cent in food cost from taking advantage of bargains:[47]

> The proportion of the regular price saved by purchasing at special prices averaged as follows for the different food groups: Meat and fish, 26 percent; eggs, 17 percent; evaporated milk, 20 percent; cheese, 21 percent; butter, 13 percent; other fats, 31 percent; sugar 13 percent; miscellaneous, 18 percent; fruits and vegetables, 34 percent.

Doman, after her study of *Price Differences in Retail Grocery Stores,* concludes that, even though the saving in terms of cents is small, for each purchase "A difference of 10 to 15 percent in the year's expenditure for groceries, through buying at the most advantageous prices, may result from the small savings on individual articles." She points out that "Seen in this aggregate amount, such savings appear more important than when considered from day to day."[48]

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[46] H. Y. Bingham, "How They Buy Food," *Food Industries,* Vol. 7, October, 1935, p. 481.

[47] G. Gray, "One Family's Food During the Depression," *J. H. Ec.,* Vol. 27, April, 1935, p. 225.

[48] Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, 1937, p. 46.

Scale of Purchase

The scale of purchase can be measured in terms of the amount spent on a visit to a store, or the pounds of potatoes or quarts of milk purchased at any one time.

Amount of Money Spent with Each Visit to a Store

Family practices, with respect to frequency and scale of purchase, have been studied to a limited extent only. In one study, a group of Iowa farm families having moderate to high incomes reported that they purchased food on the average of 10 days every month, the average size of purchase being $1.86.[49]

There was a wide range in behavior among families. The number of food-purchasing days ranged from 3.8 days to 19.0 days per month; 56 per cent of the purchases were less than $1.50, and only 9 per cent were $4.00 or more.[50]

An urban study, in which observations were made in several stores, reports that orders under 50 cents made up 50 per cent or more of the total number. Chains more frequently than independents had purchases of larger amounts; and large expenditures were more common in grocery than in fruit and vegetable stores. The size of the orders varied with the day of the week: 15 per cent of the orders given during the first part of the week were over a dollar, while 28 per cent of the orders on the weekend were a dollar or over.[51]

In another study a record was secured of 6,502 visits to grocery stores, during which time the amount spent averaged $1.32 a visit.

> The average expenditure made on a visit to the grocery store was: by women $1.81; by men and women together $4.84; by children from 15 to 18 years old $0.74; and by children under 15 years old, $0.44.[52]

It would be of interest to compare supermarkets and other grocery stores by average expenditure per visit.

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[49] "The average size of purchase" is defined as the average amount spent for food on those days when food was purchased.

[50] M. M. Cowles, *Rules for Consumer Food-Buying Contrasted with Buying Practices* (unpublished thesis), Library, Ia. State Coll., 1941, pp. 79–80.

[51] J. E. Miller, *op. cit.*

[52] I. Everett, "Who Buys the Family Groceries?" *J. H. Ec.*, February, 1940, pp. 96–8. The study was made in 1939 in Wilmington, Del. Pupils in certain classes were asked to keep records at home of the visits made for four consecutive weeks to grocery stores, by the different members of the family, and of the total value of their purchases. Of the 380 schedules distributed, 215 were returned.

Quantity of Single Food Purchased at One Time

Quantity purchased at any one time will depend on the extent of planning as well as on many other factors. Since the desirability of large quantity purchase will vary with the amounts of storage space, higher-income families and those living in houses rather than in apartments might be expected to buy in large quantities. In addition, low-income families may feel that they have insufficient purchasing power for more than a small quantity at any one time. The size of purchase will also vary with type of food since some food keeps better and some is used in larger quantities than others. Very poor families are reported at times to buy in very small quantities. For example, Phillips and Howell report: "Two ounces of butter, one ounce of coffee, or four ounces of sugar were customary purchases. In the majority of homes little if any food was ever kept on hand." [53]

Another study reports that in four cities surveyed relatively more stores in the high-income areas than in the medium- and low-income areas offered consumers packaged potatoes. The investigator concludes that [54]

> An important reason for the favorable acceptance of consumer packages among high-income families is that relatively large retail units can more readily be sold in high than in low-income areas. High-income consumers not only have sufficient money to spend at one time for a large-sized retail unit, but they also have access to delivery service or an automobile to transport the large-sized purchase to their homes.

A study of eggs in Rhode Island reveals a slightly high percentage of families in the low- in contrast with the high-income district reporting less than a dozen eggs as the customary unit of purchase. But purchases of such size are relatively unimportant. In general in this study size of purchase of this perishable product shows no consistent variation with income.[55]

The custom of small-quantity purchasing characterizes farm as well as urban families. A study of farm families in New York State reports one or two loaves of bread as the usual quantity bought by 70 per cent of the farm families reporting the purchase of bread; one or two cans of salmon as the usual purchase of 85 per cent of the families, and one or two cans of peas as the usual purchase of 71 per cent.[56]

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[53] V. Phillips and L. Howell, "Racial and Other Differences in Dietary Customs," *J. H. Ec.*, Vol. 12, September, 1920, pp. 396–7.

[54] P. J. Findlen, "Consumers' Incomes and Retail Merchandising of Potatoes," *Farm Economics* (N. Y. Coll. Agr.), June, 1940, p. 2966. See also R. L. Spangler, *Retail Trade Practices and Preferences for Late-Crop Potatoes in Chicago and Suburbs, and Quality Analysis of Potatoes Offered for Sale to Consumers, 1939–40*, U. S. Dept. Agr., Agr. Marketing Service (mimeo.), 1940; and A. S. Hotchkiss, *Consumer Buying of Potatoes and Store Offerings*, Cornell (N. Y.) Agr. Exp. Sta. Bul. 764, 1941.

[55] R. I. Agr. Exp. Sta. Bul. 240, p. 9.

Savings Possible If Larger Quantity Is Purchased

Buying a larger quantity of any single product at any one time often makes possible important saving in price per unit. Several studies report the savings possible according to the size of container purchased.

Stiebeling and Ward, for example, found that the price per pound of canned fruits and vegetables of identical quality was less in a No. 1 can than in an 8- or 9-ounce can, and less in a No. 2 than in a No. 1 can. The saving from quantity purchasing within the scope of ordinary household storage, as reported by them, is shown in Table 92.

Another study, covering 28 foods, reports:[57]

> Significant savings were generally possible by the purchase of the largest available unit.
>
> The saving due to multiple-unit buying was usually great enough to justify the extra investment.
>
> Discounts of about 10 percent were given in many stores on 6 to 24 units of canned fruits, vegetables, salmon and evaporated milk.

Another study reports a 12 per cent savings on food expenditures effected through large quantity buying.[58]

> With a modern refrigerator of adequate capacity, a root cellar, and sufficient dry storage space in pantry shelving . . . piece-meal purchases would be done away with. Quantity and seasonal buying would take its place and savings averaging $83.42 per year would result. . . .

In addition a saving of 81 hours and 28 minutes every year in shopping time is reported.

Unit of Measure Used in Buying

Many people consider that increased comparison of foods on the basis of price per pound rather than comparison in terms of dozens, quarts, and

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[56] M. Fish, *Buying for the Household,* Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, p. 27.

[57] M. E. Tiffany, *Retail Food Prices in Relation to the Amounts, Styles, and Containers,* Vt. Agr. Exp. Sta. Bul. 448, 1939, p. 41. See also Cornell (N. Y.) Agr. Exp. Sta. Bul. 665, pp. 36–43. For discussion of the savings possible in the purchase of milk see Chapter 29.

[58] R. Borsodi (ed.), *How To Economize on Buying and Storing of Food,* School of Living, Homestead Bul. 7, 1939.

*Table 92. Comparative Costs * of Specified Articles of Food of Identical Quality Purchased in Large and Small Containers †*

Item	Large-Sized Units			Small-Sized Units			Saving by Purchase in Large Container (%)
	Size	Price per container	Price per pound	Size	Price per container	Price per pound	
Flour, white	24 pounds	$0.65	$0.027	5 pounds	$0.19	$0.038	29
Flour, self-rising	do.	.79	.033	2 pounds	.10	.050	34
Wheat cereal	28 ounces	.21	.120	14 ounces	.13	.149	19
Oatmeal	55 ounces	.23	.067	20 ounces	.10	.080	16
Evaporated milk	14½ ounces	.08	.088	6 ounces	.04	.107	18
Prunes, dried	2 pounds	.19	.095	1 pound	.12	.120	21
Cherries, canned	31 ounces	.29	.150	11.5 ounces	.17	.236	36
Fruit cocktail, do.	30 ounces	.25	.133	8 ounces	.10	.200	34
Fruit for salad, do.	do.	.35	.187	11 ounces	.20	.291	36
Pineapple, do.	do.	.21	.112	14 ounces	.15	.172	35
Tomato juice, do.	50 ounces	.25	.080	12.5 ounces	.10	.128	38
Tomatoes, do.	33 ounces	.10	.048	20 ounces	.09	.072	33
Corn, do.	20 ounces	.13	.104	11 ounces	.08	.116	10
Lima beans, do.	do.	.15	.120	do.	.13	.189	37
Peas, do.	do.	.13	.104	do.	.09	.131	21
Pork and beans, do.	18 ounces	.10	.089	do.	.08	.116	23
Salmon steak	15½ ounces	.50	.515	7¾ ounces	.29	.598	14
Walnut meats	8 ounces	.49	.980	3 ounces	.23	1.230	20
Peanut butter	1 pound	.23	.230	5 ounces	.10	.320	28
Mayonnaise	do.	.23	.230	8 ounces	.13	.260	12
Olive oil	1 quart	1.00	1.000 ‡	½ pint	.30	1.200 ‡	17
Cooking oil	do.	.52	.520 ‡	1 pint	.29	.580 ‡	10
Honey	1 pound	.60	.600	3½ ounces	.20	.915	34
Molasses	40 ounces	.18	.072	18 ounces	.09	.080	10
Syrup	5 pounds	.35	.070	1 pound	.09	.090	22
Sugar	10 pounds	.49	.049	do.	.06	.060	18
Olives	32 ounces	.35	.175	6 ounces	.10	.267	34
Vinegar	1 gallon	.49	.123 ‡	1 pint	.09	.180 ‡	32
Cocoa	1 pound	.25	.250	3 ounces	.07	.373	33
Coffee	do.	.24	.250	8 ounces	.14	.280	11
Tea	8 ounces	.35	.700	4 ounces	.19	.760	8
Baking powder	1 pound	.32	.320	do.	.19	.360	11

* Based on Washington, D. C., retail prices as of October, 1931, to May, 1933.

† H. Stiebeling and M. Ward, *Diets at Four Levels of Nutritive Content and Cost,* U. S. Dept. Agr. Cir. 296, 1933, p. 39

‡ Price per quart.

bunches would result in more intelligent decisions on the part of the consumers. Some shifts in that direction have been occurring. It is only during recent years that bananas have been commonly sold by the pound rather than by the dozen. A similar shift in the purchase of other foods seems to be under way. The use of pound measure in purchasing fresh fruits and vegetables is reported by a study in Kansas City.[59]

Food	*Percentage of Families Purchasing by the Pound*
Bananas	91
Oranges	6
Green beans	61
Cabbage	48
Carrots	6
Lettuce	9
Peas	53

One cannot but wonder why cabbage is bought by the pound and lettuce by the head. Buying fresh carrots by the bunch is probably due to the custom of selling them with the tops on; whereas withered carrots are usually sold with the tops off. There is some indication in 1942 that the need to economize on transportation costs is changing this practice. With some vegetables the tops are being left at point of origin. If this is done it seems highly probable that shortly fresh carrots will be sold by the pound.

Store versus "Factory" Packaging

The market trend leaves one in no doubt that the packaging of foods in stores is decreasing. Recent experiences in the marketing of potatoes indicate, however, resistance to "factory" packaging, which may occur either because of higher price accompanying it or because it deprives consumers of an opportunity to inspect the product. About one-half of the retailers in 204 Cleveland stores reported unfavorable customer reaction to branded packages of potatoes. "The unfavorable reaction was much more frequent in the low- than in the high-rental areas." [60] Low-income families are more likely to depend on personal selection and the high-income families on dealer's assurance that the potatoes are of satisfactory quality.

During recent years there has also been a tendency for eggs to be put into cartons, some of them costing 1 to 2 cents each. Eggs in cartons may or may not be branded. Whether they are put into cartons or not, an attempt commonly is made to create the impression that the eggs in cartons are superior. In the Rhode Island study already referred to, preference for eggs in cartons varied directly with income level of the district.[61]

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[59] R. T. Scholz, *A Study of Food Buying Practices of 784 Kansas City Families* (thesis), Univ. Tenn., 1938.

[60] M. E. Craven, "Packages of Potatoes—Branded Retail Packages," *Farm Econ.* (N. Y. Coll. Agr.), 1938, pp. 2609–12. See also Idaho Agr. Exp. Sta. Bul. 231, 1939.

Among a group of New York farm families Fish found that 28 per cent of the families with a low index of all food prices purchased rolled oats in bulk, whereas only 1 per cent of the families with a high index of all food prices bought their rolled oats in this form. The low index of all purchase food prices was also associated with a relatively large percentage buying cheese in bulk.[62]

In spite of the marked increase in factory-packaged foods sold under brand names, there are still (apart from meats) fresh fruits and vegetables and a few "bulk" foods available. For these products any packaging needed is done by the retailer. A Vermont study reports:[63]

> Although 18 (out of 28) foods might have been found on sale in both bulk and packages, as a matter of fact relatively few were offered in both forms in the same store. Few bulk goods were carried because of the inconvenience and wastefulness involved in handling them. Some stores charge almost as much for bulk as for packaged goods. Although they could have been sold in any quantities, some goods, such as flour, were sold in bulk only in quantities smaller than those available in packages.
>
> Macaroni, rice, prunes, and vinegar, generally found on sale in most of the stores in both forms, were less costly in bulk. Some little gain came from buying sugar in bulk. Although savings were possible on some other goods by buying them in bulk rather than in packages, they were so rarely available in bulk that much shopping about was required to secure them.
>
> Bulk macaroni, apparently of lower grade than that sold in packages, was cheaper than the packaged form.

In view of this situation it should not be surprising that few families turn to "bulk" rather than "package" buying as a means of economizing their food dollars.

How To Select Quality

Personal Inspection

Here we are concerned not with the selection of a can of soup from among an assortment of brands on a shelf but rather with the selection of such things as individual potatoes out of a bin, or grapefruit, or bunches of carrots, or heads of lettuce, or celery from piles, where inspection of food itself is possible. Such selection will occur only if consumers feel that through inspection they can discriminate between the good and the poor, the best and the mediocre. It will depend also on the opportunity that the store affords through displayed goods and through the absence of a clerk whose presence may lead a customer to feel that she should leave to him the handling of the products.

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[61] *Op. cit.*, p. 31.

[62] Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, pp. 36–7.

[63] M. E. Tiffany, *Retail Food Prices in Relation to Amounts, Styles and Containers*, Vt. Agr. Exp. Sta. Bul. 448, 1939, p. 40.

After extensive observations of consumer behavior in retail stores, Miller concludes that [64]

> A very small percentage of the customers took advantage of the opportunity to make personal selection by picking out the produce desired. Of the 293 customers observed in chain stores only 19 percent of them made any selection of this nature for themselves, 7 percent of those in fruit and vegetable stores and only 4 percent in independent stores. . . . These figures would lead one to believe that consumers in general do not choose to take advantage of such facilities as self-service as are offered, but instead depend on clerks to make selection.

Another study reports: [65]

> Consumers buy potatoes after relatively little inspection of the product. About three-quarters of the consumers ordered potatoes without looking at them at all. Relatively few people selected the potatoes they wished to buy.

Failure to inspect the product may arise from a number of causes. One study of potatoes reports: [66]

> In most stores, bins of potatoes are available from which the customer may, if she likes, pick out the potatoes she wants. In the majority of such stores, however, employees give the customer little, if any, opportunity actually to select the purchase, although they do in varying degrees, attempt to select for the customer something approaching the sizes and quality requested . . . predominating method is one where the clerk selects and weighs the potatoes in the presence of the customer.

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[64] J. E. Miller, *Buying and Selling Practices Observed in 60 Retail Grocery Stores, 1937–38* (thesis), Cornell Univ., 1938. The observations were made in 40 retail stores in Cleveland, Ohio, and in 20 in Rochester, N. Y.; 692 customers were observed.

[65] A. S. Hotchkiss and P. J. Findlen, "Consumer Demand and Preference for Potatoes," *Farm Econ.* (N. Y. Coll. Agr.), April, 1939, pp. 27–48.

[66] R. L. Spangler, *Retail Trade Practices and Preferences for Late-crop Potatoes in Chicago and Suburbs and Quality Analysis for Potatoes Offered for Sale to Consumers, 1939–40,* U. S. Dept. Agr. Marketing Service (mimeo.), 1940.

A considerable amount of inspection can take place, of course, even though the clerk handles the produce. The existence of a desire for personal inspection is indicated by many stores having to discontinue the handling of packaged potatoes because "customers wanted to see what they are buying."

The personal selection of potatoes appears to have been studied more fully than that of any other product. One study reports that personal selection decreases sharply with increase in income. For example, where family income was less than $15 a week, 55 per cent of the family selected potatoes personally, and where the income was $76 or more only 11 per cent of the families did so. (See Table 93.)

Table 93. Percentage of 1,775 Families Making Personal Selection of Potatoes Purchased; by Income Groups *

Family Income Per Week	Percentage Making Personal Selection
$15 or less	55
16–$25	43
26– 35	36
36– 45	32
46– 55	26
56– 75	27
76 or more	11
All	37

* *Marketing Maine Potatoes,* I. A. Preliminary Report of Consumer Preference for Potatoes in Boston, Mar. 8 to Apr. 6, 1940, Me. Agr. Exp. Sta. and Me. Development Commission in Cooperation with Coop. Res. and Ser. Div., Farm Credit Administration, U. S. Dept. Agr., 1940.

The extent of personal selection appears to vary from city to city. Bakken, for example, reports:[67]

> The full significance of the care that is exercised in selecting and sorting fresh vegetables . . . is reflected in the habits of the market-basket shoppers. The practice of consumer personal inspection is so prevalent in Milwaukee and Chicago stores that the retailers have devised ways and means to make it convenient for their customers to wait upon themselves. Potatoes and other fruits and vegetables are displayed in long rows of open trays in such ways that the shoppers may walk among the open shelves and pick and choose to their heart's desire.
>
> More than 70% of the people interviewed in Chicago reported that they personally inspected the potatoes before buying them. . . . Between 50 and 60% of the Milwaukee and Madison customers exer-

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[67] Wis. Agr. Exp. Sta. Res. Bul. 124, 1934, pp. 14–5.

cised the same care in buying. When the product is ordered by phone the retailer is usually given instructions to send choice stock and most of the buyers will refuse to accept the goods if they are too unsatisfactory. The extent to which the retailer anticipates the desires of the consumer in filling phone orders is reflected by the fact that three out of four buyers reported that they were satisfied with the potatoes the storekeeper puts up for them.

Reliance on Clerks

The tendency toward posted prices, open display, self-service, and national advertising all tend to reduce the questions that are asked in the store. Repeatedly studies have shown that few questions are asked of the clerks.

Nevertheless, considerable reliance on clerks occurs for some foods. For example, Liston feels that there is a very great deal of reliance of the dealer in selection of beef. She reports:[68]

> The 16 merchants interviewed said that few specifications were made by household buyers. . . . Most dealers said that buyers generally stated the use to be made of the meat and expected the salesman to choose satisfactory cuts and qualities. However, in many markets meat was cut and displayed in cases so that anyone buying in person could note the cut, color, texture, marbling and approximate weight before making a choice and could ask for a desired piece, thus obtaining definite qualities without specifying them.

Merchants also reported that consumers relied on salesman for information concerning the quality of eggs. Liston corroborated this report by observation in the store. She also adds:

> Egg inspection data from the State Division indicates that information given by the salespeople is not always dependable. Approximately one-half of the eggs found during the initial inspection of 58 stores were called "fresh," either verbally by the owner, manager or salesman, or on the container in which they were sold, whereas one-fifth of these "fresh" samples did not measure up to the state definition.[69]

Further evidence of reliance on the clerk lies in the fact that some studies show that customers do not watch the scales. Jannett and Williamson report: "While more than half of the families in each group asked the price per pound, less than half watched the scales when their purchase was weighed."[70]

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[68] Vt. Agr. Exp. Sta. Bul. 416, p. 28.

A. Jannett and M. Williamson, "Food Buying Practices," *J. H. Ec.*, Vol. 29, June, 1937, pp. 377–8, report that the majority of the household buyers questioned were not familiar with the cuts of meat.

[69] Vt. Agr. Exp. Sta. Bul. 415, 1937, p. 19.

Use of Brand as a Guide in Purchasing

Desire to try new things, advice of a friend or a retailer, the impression created by advertising may cause a consumer to try a brand. Satisfaction or habit with it may cause her to continue buying it. Many consumers show a great willingness to shift from one brand to another if the differences in price between competing brands is especially great.[71]

Limited studies are available on the use of brands by income groups. Bingham reports that, out of 100 housewives interviewed in the Chicago area, 61 per cent in the top income class during one week, for which records were kept, bought three-quarters or more of their grocery items under national brands. In the next income class the proportion was practically the same, whereas in the lower-middle income group only 44 per cent of the families bought during the week three-quarters or more of their grocery items under national brand. For the lowest income group the proportion was, however, 58 per cent.[72]

Fish found that among farm families having a low index of all food prices 11 per cent reported buying a national brand of coffee, and 70 per cent a chain store brand; whereas among families with a high index of all food prices 33 per cent of the families purchased a national brand of coffee, and 27 per cent a chain store brand.[73]

A study by Amburgey and Coles indicates limited knowledge of brands.[74]

> Apparently most of the homemakers . . . were not familiar with brand names under which many common foods were marketed and did not buy by brand frequently enough to remember the brand they purchased. . . . Their infrequent use of brands was . . . shown by the fact that when asked to make out a detailed market order to 25 foods less than one-half named a brand for all but three of the items. For most of the foods less than one-fourth of the homemakers named a brand.

Ignorance Concerning Quality Differences of Products Purchased

A few attempts have been made to discover the extent of consumer knowledge of quality differences in the products purchased. The data are meager but in general indicate limited knowledge. However, it should ever be borne in mind that many buyers have a shrewdness in actual market practice beyond that exhibited in a session with an investigator who has probably acquired her market information largely in the classroom rather than the market place. Typical findings concerning consumers' knowledge of quality are the following:[75]

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[70] *Op. cit.*, p. 378.

[71] For further discussion of brands see Chapter 23.

[72] H. Y. Bingham, "How They Buy," *op. cit.*

[73] Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, p. 36.

[74] J. N. Amburgey and J. V. Coles, "The Buying Habits of Missouri Homemakers," *J. H. Ec.*, January, 1934, p. 19. In this study information was secured from 460 Missouri homemakers, 219 on farms and in small villages and 241 in cities of less than 50,000 population.

> When questioned concerning their knowledge of grades for certain foods . . . 12 percent said they knew the score of the butter they bought, and about 25 percent said they knew the grades of meat sold by their dealer. The grading terms they gave, however, both for potatoes and meat were not the official terms used in grading these foods. . . .
>
> When questioned about the use of the substandard grade, most of the buyers said that they had not seen the substandard label on canned foods and that they would not use food which carried such a label.

Bakken reports that "The consumer that distinguishes variety [of potato] is rare."[76]

Another study showed that "the majority of homemakers lacked familiarity with size of cans"[77] and that women did not know whether they bought true or artificial extracts.

Liston reports that "nine-tenths of the women said that there was some kind of a purple stamp on the beef they bought, although more than half of them were unable to describe it, the members of the limited-income group being more vague than others . . . the buyers were asked to state the meaning of the stamps found. They commonly referred to stamps as indicating inspection by federal officials or by packers but had no clear understanding of their implications."[78]

Ignorance Concerning Price

How do consumers know about price before they buy? In a study, "368 farm families were asked about their 'usual methods' of shopping. In purchasing for 180 of the families, approximately 50 percent reported that they 'never compared price.'"[79]

This question does not go very far in revealing the extent of price information, but it suggests that many consumers do relatively little searching for the best price.

[75] M. E. Reigel, "Food Buying Practices," *J. H. Ec.*, June, 1937, pp. 379–82.

[76] Wis. Agr. Exp. Sta. Res. Bul. 124, 1934, p. 12.

[77] A. Jannett and M. Williamson, *op. cit.*, p. 378.

[78] Vt. Agr. Exp. Sta. Bul. 415, p. 27.

[79] Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, 1933, p. 78.

Requests by Consumers to Retailers for Improvements

Grocers are not faced with a problem of returned goods. They may, however, get complaints about quality of food. A recent potato study reports that such complaints are much more common in stores in high- than in low-income areas.[80]

Over and over again during the past few years retailers have stated that many improvements in selling practices, for example, more information labeling, would be made if only consumers would ask for them. Yet, when consumers are asked if grading and information is considered desirable, they almost always answer, "Yes." For example, one group of women was asked, "Do you think there should be a state law defining 'fresh' and requiring that all eggs be sold as 'fresh' to meet the definitional standards?" Practically everyone responded, "Yes."[81] Apparently requests are too infrequently made to retailers.

Improvement in Consumer Purchasing Practices

Although there is considerable evidence that consumers are careless and otherwise incompetent in their buying, there is also much evidence that they are interested in getting more for their food dollar. They would be assisted by information on labels that would reveal the comparative quality of products; by standardization of sizes so that price per standard unit could be determined with more ease; and by more information about the product before they come to the store, for example, through testing agencies that report on the various brands, through a price reporting service, and through more informative advertising. They need help in evaluating the economy of buying in large quantities, in understanding retail-pricing practices that often bewilder and confuse, and in knowing the significance of characteristics that may be observed. They need to be encouraged to indicate to retailers their approval and disapproval of various merchandising practices.

Discounts for other than Saturday shopping rather than for weekend specials would help to spread consumer buying throughout the week, and charge for services would prevent time abuse. Such innovations must be made by retailers.

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[80] P. J. Findlen and M. E. Cravens, "Some Facts Concerning Retailer Preferences for Potatoes in Rochester, N. Y., 1936–37 Season," *Farm Econ.* (N. Y. Coll. Agr.), February, 1939.

[81] Vt. Agr. Exp. Sta. Bul. 415, pp. 17–8.

IV

Social Policy and Food Consumption

19

Food Budgets in Public Administration

The administration of relief, the formulation of wage policies for the W.P.A., provision of loans and grants to clients of the Farm Security Administration, the determination of a minimum wage rate under minimum wage laws requiring the provision of a given scale of living, and the planning of food rationing all call for the preparation of food budgets, more or less detailed. Official food standards for the military forces are obviously necessary. Budgets, in addition, may have an important place in collective bargaining. The International Labour Office states:[1]

> The idea of *national minima* is suggested as a basis for evaluating workers' living standards and as a possible guide to policy.

The importance of administrative budgets can be seen in one fact alone, namely, that 15 per cent of all families during 1935–1936 received

Table 94. Percentage of Families That Received Relief at Any Time during the Year, by Region and Type of Community, 1935–1936 *

Type of Community	All Regions	New England Region	North Central Region	Southern Region	Mountain and Plains Region	Pacific Region
Metropolises	14.8		14.8			
Large cities	16.4	16.0	18.2	15.2	17.0	12.9
Middle-sized cities	18.3	20.6	17.7	15.6	24.4	21.9
Small cities	16.5	17.6	18.2	12.5	23.7	10.2
All urban communities	16.5	18.0	17.0	14.2	21.8	13.6
Rural non-farm communities	19.3	20.9	20.9	16.6	20.8	20.4
Farms	8.9	5.3	2.0	11.2	17.9	8.2
All rural communities	13.6	15.8	12.2	13.2	19.1	15.3
All communities	15.3	17.4	15.5	13.6	20.1	14.2

* Nat. Resources Committee, *Consumer Incomes in the United States 1935–36*, 1938, p. 74.

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[1] Inter. Lab. Off., *The Worker's Standard of Living*, Stud. and Reports Ser. B (Economic Conditions), No. 30, 1938, p. 5.

some relief. (See Table 94.) In December, 1938, 22 million persons were either receiving relief or were employed by federal works' programs.[2]

Interest is here concentrated on food budgets. It is recognized, however, that although food constitutes the most important item in a relief budget, other items are essential. Relief families in many instances use funds budgeted for food, even when they are scanty, in order to secure other items for which no provision has been made.

Cash Relief versus Food Orders

This issue arises again and again in relief policies. Specialists can choose more wisely than the average housewife, but the effect of such regimentation and paternalism is held by many as more undesirable than the lower level of nutritional health resulting from free choice. The greater knowledge of the specialist, it is held, should be brought to bear on choice only through education.

The belief that families fail to choose food wisely or that they use the funds budgeted for food for the purchase of non-food items is in large part responsible for the use of grocery orders. One study, for example, reports that a 22 per cent decrease in the use of milk occurred within two weeks, among 31,000 of the 44,000 Philadelphia families on relief, with a shift from food orders to cash relief. By the following month the decrease in the purchase of fluid milk was as great as 29.6 per cent.[3]

Wiehl reports of families in New York City:[4]

> Families on home relief, i.e., receiving food orders, reported a more adequate amount of food than either the work-relief families or the non-relief families with less than $4. . . .
>
> The work-relief families had a diet very similar to that of non-relief families of the lowest incomes, but in the diet of home-relief families the amounts of various foods were more nearly those recommended in the standard. Thus, the quantity of meat was less and the quantity of cereal foods and potatoes was more than that reported by other low-income families; the cheaper dried fruits were substituted to a greater extent for fresh and canned fruits.

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[2] Soc. Sec. Bd., *Soc. Sec. Bul.,* Vol. 3, No. 11, November, 1940, p. 57.

[3] S. Egbert, "Significant Aspects of a Recent Official Survey Concerning the Household Use of Milk in Philadelphia," *Am. J. Pub. Health,* Vol. 25, July, 1935, p. 794.

[4] D. G. Wiehl, "Diets of Low-Income Families Surveyed in 1933," Health and Depression Studies 3, *Pub. Health Reports,* Vol. 51, No. 4, 1936, pp. 77–97. "Home-relief" families had grocery orders.

Roberts writes:[5]

> Physicians who have examined children in some localities where all families are on marginal incomes report that those on relief are definitely better nourished than those that are not. This is especially true . . . when food relief is given partly or entirely in kind, for the essential foods are actually provided rather than being left to the chance buying habits of families. This is probably not the best method from the larger viewpoint of the families' whole mental and social welfare, but from the physical standpoint the results are unquestionably good.

Cash relief continues in spite of evidence that families do not use cash relief to secure the diet planned for in the budget. Cash relief is favored by many social workers because of its effect on morale. To secure one's food by means of a grocery order is to announce to those in the store that relief is being received, and as a result to increase the sense of incompetence and failure that family members may feel.

In some cases a compromise is made. Milk may be delivered at the home and the remainder of the food budget given in cash. Free milk in some instances is provided to nursing mothers and preschool children. This practice has not been so widespread in the United States as in certain European countries. A report of the United Kingdom gives some insight into the scope of this part of its nutrition program.[6]

> Maternity and child welfare authorities have the power to arrange . . . for providing extra nourishment for expectant and nursing mothers, and for children under the age of 5 years. . . .
>
> Nearly every maternity and child welfare authority supplies milk free or at less than cost to expectant and nursing mothers and to children under 5. A large proportion also supply foods other than milk to the same groups. . . .
>
> A circular was issued, on April 1st, 1937, to all maternity and child welfare authorities in the country . . . asking them to review their arrangements under the Maternity and Child Welfare Act for the supply of milk and other foods, in view of the importance of securing that the diet of pregnant and nursing mothers contains the proper constituents and that the consumption of milk, especially by young children, is increased. Suggestions were also made for the removal of various limitation—*e.g.,* by the relaxation of restrictions

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[5] L. J. Roberts, "Studies of Nutrition Work with Children," *Ann. Am. Acad.,* November, 1940, p. 116.

[6] Quoted from League of Nations, *Survey of National Nutrition Policies, 1937–1938,* Pub. II. Economic and Financial 1938. II. A. 25.

> of the amount of milk and other food supplied, and by the amendment of the income scales adopted in connection with their arrangements for the supply of milk and food free or at less than cost price, to ensure that they were so framed as not to make it difficult for any who need help to take advantage of the arrangements.

Free milk to children and pregnant and nursing mothers in the low-income groups is an important part of the wartime food policy of Great Britain.

Formulating Food Budgets

Food budgets when carefully planned are based on a selected standard of nutrients. A relief agency may strive to provide optimum nutritional health. The selected standard of nutrients must be translated into specific foods. In doing this, attention must be given to the customs and conventions of the group for which the budget is designed.

In few, if any cases, is it possible to formulate acceptable food lists, including only the most economical sources of those nutrients considered necessary. Furthermore, local producers sometimes attempt to increase the quantity of their foods to be included in the administrative standard.

The next step in the administration of the food budget depends on whether the families are to be given foods, grocery orders, or money. If money is to be given, food lists must be priced in stores where families for whom budgets are prepared are likely to buy. In periods of changing food-price levels, adjustments must be made from time to time. In securing prices it is important that they reflect the purchasing practices of families concerned. In the preparation of food budgets, especially where cash relief is given, allowance must be made for waste in choice and marketing of foods. No satisfactory standard exists for making allowances for these types of incompetence.

Moreover, decisions must be made concerning the variation in the per capita allowance according to the size of the family. The *Chicago Standard Budget for Dependent Families, 1937,* reads:[7]

> There are few data on which to base estimates of variations in expenses for small or very large families. It is a matter of common observation that the disadvantage of buying and cooking in small quantities makes the cost of food proportionally greater for the small family than for the family of medium size. It is also universally agreed that some savings can be effected in the large family group which are not possible in smaller ones.

[7] Council of Social Agencies of Chicago, *Chicago Standard Budget for Dependent Families, 1937,* pp. 5–6.

The additions or reductions which this agency makes for size of family are as follows:[8]

> Family of one—add 50 percent to the monthly food allowance.
> Family of two—add 25 percent to the monthly food allowance.
> Family of three—add 10 percent to the monthly food allowance.
> Family of 4–7—no additions or subtractions.
> Family of 8 or more—subtract 5 percent from the monthly food allowance.

These rules indicate the practice of the Chicago agency. In some cities no adjustment in allowance is made for size of family.

The concept of adequacy, incorporated in administrative food budgets, has been changing in recent years. The successive editions of the *Chicago Standard Budget,* set up by the Council of Social Agencies, illustrates this point. In an edition prior to 1927, it was stated that the food standard should be such as to maintain the health of all members and to keep working members at a point of industrial efficiency. The 1937 edition of this budget states:

> The minimum standard of normal living must furnish everything necessary for a manner of living that will make possible a high standard of physical, mental, and moral health and efficiency for adults: the full physical and mental growth and development of children. . . .

The 1929 *Chicago Standard Budget* allowed $1.80 a week for a man of moderate activity. In 1937 the allowance was $2.32, an increase of 29 per cent.[9] The Charity Organization Society of New York announced January, 1938, that it would increase food allowances by 4½ per cent for families with children.

Pressures exist both to push the official standard up and to keep it down. Pressure to raise the standard comes from families whose living is affected and from many social workers and others interested in wiping out poverty and malnutrition, either because they feel that all families are entitled to a decent standard of living or merely because the costs of sickness and crime and inefficient labor are considered higher than the costs of adequate food. If the costs of the higher standards are to be met from taxes, those who object to present or increased tax burden may take steps to check a rise in official standards or may bring pressure to lower those already in use. There are also those who fear that a high standard of relief or W.P.A. will reduce the effort that people will put forth to seek employment as well as their willingness to accept employment that is offered.

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[8] *Ibid.,* p. 33.

[9] Allowance for each of these years are expressed in terms of 1935–1939 retail food prices.

In many cases there is a discrepancy between official standards and actual standards. This may be so persistent that one may wonder concerning the function of the official standard. The official budget in some instances may be window dressing or again it may embody the hope of the agency or be the means used to maintain a moderately high standard.

The budgetary standard for food, and more especially other items, was in many places relatively low in the early stages of the depression. Prevention of hunger and serious deficiencies rather than the maintenance or attainment of optimum health was the major purpose. In addition, it was assumed that many families had reserves on which they could draw. The effects of continued low standards, the depletion of families' resources, as well as the reorganization of public finance, making additional funds available, created conditions later that pushed up allowances. Periodic cutting of allowances has occurred as funds reached low points. Intermittent depletion of many local funds lead many people to feel that financial arrangements for providing minimum standards need extensive reorganization.

Some Proposed Food Budgets

No food budgets during recent years have been more widely quoted than those set forth in the United States Department of Agriculture, Circular 296, by Stiebeling and Ward, entitled *Diets at Four Levels of Nutritive Content and Cost.* The levels include:

(*a*) Restricted diet for emergency use.
(*b*) Adequate diet at minimum cost.
(*c*) Adequate diet at moderate cost.
(*d*) Liberal diet.[10]

These diets have affected administrative policy in many ways. For example, "the quantity budgets for maintenance and emergency standards of living," formulated by the W.P.A., are based on the two lower diets listed above.[11]

The restricted diet for emergency use is based on what are believed to be the minimum requirements of the body for various nutrients. Little margin for safety is provided; so the diet is not recommended for use over an indefinite period. The diet is believed to include quantities of protective and other foods, below which it is not safe to reduce the food supply. Stiebeling and Ward[12] recommend that continuous effort be made to increase the

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[10] This liberal diet provides slightly less of those nutrients most likely to be deficient in the American diet than does the recommended allowances of the Committee of Food and Nutrition of the National Research Council, as of May, 1941.

[11] W.P.A., *Quantity Budgets for Basic Maintenance and Emergency Standards of Living,* Series I, No. 21, 1936.

> quantities of milk, vegetables, fruits, lean meat, and eggs in accordance with the allowances suggested in the adequate diets. The minimum- and moderate-cost adequate diets provide, it is believed, enough of the different nutrients to cover average requirements for maintenance and growth and to furnish a margin of safety as well. The liberal diet is fully adequate. It includes items from different food groups in such quantities and proportions as to promote better-than-average nutrition. It permits a greater variety in food than may be provided by the other diets.

The diets are expressed in terms of nutrients, quantities of specific foods or groups of foods, and cost. The allowance of major foods in these diets is shown in Table 95. Data are given for persons by age, sex, and activity. Since the study is on a national basis many local and group

Table 95. Estimated Annual per Capita Food Requirements by Type of Food, at Four Dietary Levels *

	Unit	Restricted Diet for Emergency Use †	Adequate Diet at Minimum Cost †	Adequate Diet at Moderate Cost †	Liberal Diet †
Flour, cereals	pounds	240	224	160	100
Milk (or its equivalent)	quarts	155	260	305	305
Potatoes, sweet potatoes	pounds	165	165	165	155
Dried beans, peas, nuts	pounds	30	30	20	7
Tomatoes, citrous fruits	pounds	50	50	90	110
Leafy, green, and yellow vegetables	pounds	40	80	100	135
Dried fruits	pounds	10	20	25	20
Other vegetables, fruits	pounds	40	85	210	325
Fats (including butter, oils, bacon, salt pork)	pounds	45	49	52	52
Sugars	pounds	50	43	60	60
Lean meat, poultry, fish	pounds	30	60	100	165
Eggs	dozen	8	15	15	30

* Stiebeling and Ward, *op. cit.*, p. 2.

† The figures given in this table are computed from diets adapted to the needs of individuals of different age, sex, and activity groups (*ibid.*, pp. 14–9) and from the number of persons in each group, as shown by the 1930 Census of Population. The quantities are those which should be delivered to the family kitchen.

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[12] *Op. cit.*, p. 4.

conditions—both food habits and prices—have been ignored. The authors point out:[13]

> Many economies may be effected by taking full advantage of regional products instead of products from a distance. . . . Conversely, many higher-priced commodities are also available, and the upper limit of the cost of any diet depends upon the extent to which the consumer indulges in the relatively expensive forms or varieties of food.

In 1939 the Family Welfare Association, in cooperation with the social welfare and public health departments of the American Home Economics Association, working with a representative of the American Dietetics Association, prepared a pamphlet entitled *Adequate Family Food Allowances and How To Calculate Them.*[14] It was presented as "a partial answer to requests for budget standards from both public and private agencies concerned with the administration of relief." Official budgets of selected cities are given, and techniques of working out individual cases shown. In this way a group of specialists with professional standing has given expert advice which might otherwise tend to be lacking, especially in the smaller communities.

Budgets at various levels are also prepared by the Heller Committee for Research in Social Economics of the University of California. Among other things it prepared a *Quantity and Cost Budget for Dependent Families or Children.*

Comparisons Involving Relief Budgets

Relief budgets may be subjected to many types of comparisons. Actual cash, budgeted to food or grocery orders, may be compared with official standards that presumably represent what the agency considers desirable. Both the official and the actual standards of any agency may be compared with the standards of other agencies or with widely accepted standards such as those formulated by Stiebeling. They may also be compared with the diets of non-relief families.

Food budgets of social agencies differ widely, even among large cities where considerable attention is given to their preparation. (See Table 96.) More striking differences would undoubtedly be shown were Southern as well as Northern cities included. Even if budgets are planned to provide the same nutrients, the cost of the budget will differ, however, from city

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[13] H. K. Stiebeling and Medora Ward, *Diets at Four Levels of Nutritive Content and Cost,* U. S. Dept. Agr. Cir. 296, 1933, p. 6.

[14] Published by the Family Welfare Association of America, 130 East 22d Street, New York, N. Y.

Table 96. Weekly Food Relief Allowances for a Man of Moderate Activity *

Food Item	Chicago 1929	Milwaukee 1920–1923	New York 1922	Boston 1928	Washington State 1929	Washington, D. C. 1928	Cleveland 1928
Calories—3000							
Milk, qt.	2.3	3.5	3.5	3.0	3.5	3.5	3.6
Eggs		2.0	4.0	2.0	2.0	4.0	4.8
Meat and fish, lb.	1.7	0.8	1.7	2.2	1.9	1.9	3.0
Potatoes, lb.	6.5	5.2	6.0	5.0	3.8	7.0	4.5
Other vegetables, lb.	3.5	5.5	3.4	3.5	4.2	4.0	3.7
Fresh fruit, lb.	4.0	2.6	1.9	1.4	1.5	2.4	2.0
Dried fruit, oz.	8.0	10.7	5.0	5.0	8.0	6.0	12.0
Legumes and cheese, oz.	12.0	9.3	6.9	10.0	14.3	14.0	4.8
Bread, lb.	4.5		3.9	4.5	3.4	4.5	4.8
Cereal and flour, lb.	3.5	5.0	3.0	2.5	2.2	3.5	0.8
Fat, oz.	28.0	16.5	13.8	18.0	13.4	18.0	19.2
Sugar, oz.	18.0	22.5	13.8	14.8	16.5	18.0	19.8
Total Cost	$2.40	$2.00 †	$2.18 †	$2.41	$2.37	$2.73	$2.82

* A. M. Moser, "Standard Food Budgets Used by Social Agencies," *J. H. Ec.*, Vol. 26, March, 1934, p. 152.

† No allowance made for beverages and seasonings.

to city because of differences in customary food habits and in food prices.[15]

Stiebeling and Ward compare the "restricted diet emergency use" with relief standards:[16]

> The restricted diet for emergency use has a lower retail value than have the diets budgeted for many if not most organized social agencies for dependent families in times of national prosperity. It has a higher retail value, however, than does the food which can be procured with the relief allowances furnished thousands of families in the period of widespread unemployment during 1931–33.

One writer describes relief allowances existing in 1938 as "an experiment in malnutrition."[17]

Britton determined for the city of Akron the lowest cost at which a family could purchase an adequate diet, and then attempted to ascertain whether the relief given and the income provided by W.P.A. in that city would provide an adequate diet plus a minimum for other essentials.[18] She selected the minimum-cost adequate diet, developed by Stiebeling and Ward, and estimated the quantities of foods needed for families of selected size and composition.[19] Grocery lists were priced in two types of stores patronized by low-income families. She found the relief food allowance for a family of five was $5.90, while the cost in two stores of the foods included in the diets was $8.08 and $8.90, respectively. She concludes that in setting up the relief food allowances there appears to be no recognition of the cost of an adequate diet such as that set up by Stiebeling and Ward.

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[15] See, for example, W.P.A., *Intercity Differences in the Costs of Living, March 1935, 59 Cities,* 1937, p. xxvi.

[16] *Op. cit.,* p. 4.

[17] D. S. Howard, "But People Must Eat," *Atlantic Monthly,* Vol. 165, February, 1940, pp. 195–202.

In November, 1935, in Akron, the maximum wage for W.P.A. unskilled workers who were heads of households was $55 a month. If five-member families spent amounts for fuel, light, clothing, and rent, equal to the relief budget of the county for these items, they would have left $4.41 for food. If the families on this wage spent $8.08 a week for food, 64 per cent of the wage would go for food. For a family of two the W.P.A. minimum wages were found to be high enough to provide the essentials other than food in the relief budget and to leave enough to cover the adequate diet at minimum cost.

In comparing relief budgets, either official or actual, with the diets of non-relief families two types of comparison may be made. Relief budgets of a given community may be compared with the diets of non-relief families in any part of the United States or with those in the same community. Hoyt says:[20]

> Every minimum proposed as the least consistent with health and decency turns out to be higher than what a large number of workers concerned are receiving.

In making a comparison using food expenditures of relief and non-relief families it must be remembered that relief families may get expert advice on what to buy and where and when to buy so that they may use their money to better advantage than these families. The *Chicago Standard Budget* definitely states that its estimate of cost for dependent families is not a standard for self-supporting families. The dependent family has the personal attention and advice of a professional case worker and of nutritionists who help them get an adequate diet at a relatively low cost.

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[18] V. Britton, "The Cost of Food and the Adequacy of Income," *J. H. Ec.*, Vol. 29, May, 1937, pp. 294–6. Britton also considered minimum wages set for the rubber industry by the N.R.A.

[19] "Whole milk and white sugar were used in the diet rather than the less customary substitutes (dried milk, evaporated milk, molasses, heavy cane or sorghum sirup) suggested. . . ." *Ibid.*, p. 294.

[20] E. E. Hoyt, *Consumption in Our Society*, p. 322.

In Table 97 is shown the maintenance standard set up by the W.P.A. in contrast with the actual expenditures of 1,269 self-supporting families of wage-earners and clerical workers, of lowest income group in the same cities. The "lowest-income" family is defined arbitrarily as one whose expenditure per consumption unit is less than $400 a year. Of this comparison Hoyt writes:[21]

Table 97. (1) Estimated Annual Cost for a Maintenance Level of Living for a Four-Person, Manual Worker's Family in 10 Cities, 1935, and (2) The Actual Expenditure and the Relative Amount Going to the Various Items, by 1,269 Wage-Earners and Clerical Workers in the Lowest Income Self-Supporting Groups, in the Same 10 Cities, 1933–1936 *

Items	Estimated Maintenance Level, 4-Person Family	Actual Expenditure, 4.75-Person Family
Estimated annual cost or actual expenditure	$1,267	$1,257
Percentage going to various items:		
Food	35.8	38.5
Clothing and upkeep	12.6	10.6
Personal care	1.9	2.1
Housing	16.9	16.6
Household operation	9.8	12.2
Furniture, furnishings, and equipment	2.4	2.6
Medical care	4.1	3.5
Transportation	5.0	5.6
Recreation	6.0	4.8
All other	5.5	3.5
Total	100.0	100.0

* W.P.A., *Inter-City Differences in Costs of Living, March, 1935; 59 cities*, 1937, p. xxvi.

> The maintenance level recommended by the Works Progress Administration is liberal as compared with the actual expenditures of the 1269 families . . . though the totals were nearly the same, the Works Progress Administration family was only four persons, whereas the average actual family was 4.75 persons.

It should be noted, however, that the actual level of living of W.P.A. families in many if not most cases did not equal this standard.

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[21] *Ibid.*, p. 321.

Houghteling studied the incomes and expenditures of families of unskilled workers living near the Chicago stockyards in order to discover if the self-supporting families with "full-time" employment had a level of living as high as that set by the *Chicago Budget* for dependent families. She found that the family funds of only half the families were high enough to meet it. Of 216 families studied about 43 per cent were spending less for food than that allowed by the *Chicago Budget* standard.[22]

Fifty-four of these families kept detailed food records for a month. Thirty-five out of the 54 families spent less than the amount allowed by the standard budget.[23] When the food consumption of these 35 families was examined, the diets of 15 families were found to be inadequate "in all respects." Of the 19 families spending more than was allowed by the standard budget, only one family had a diet rated inadequate in all respects. (See Table 98.) When adequacy of calcium consumption was ignored and a dietary 10 per cent under the accepted minimum was considered as adequate, 27 out of the 35 families spending less than the standard budget were found to have diets inadequate in two or more essentials. Only 7 out of the 19 families spending more than the food expenditure allowed in the standard budget had diets inadequate in two or more essentials.

Table 98. Fifty-Four Chicago Families Classified by Adequacy of the Actual Diet *

Degree of Adequacy	Number of Families	Relation to the Standard of the *Chicago Standard Budget*	
		Expenditure less	Expenditure more
All families	54	35	19
Adequate in all essentials	2		2
Inadequate in certain respects	52	35	17
Adequate in all respects except calcium	4	1	3
Adequate in all respects except calories	1		1
Inadequate in:			
2, 3, or 4 essentials	31	19	12
All essentials	16	15	1

* L. Houghteling, *op. cit.*, p. 98–9.

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[22] L. Houghteling, *The Income and Standard of Living of Unskilled Laborers in Chicago*, 1927, p. 90.

[23] *Ibid.*, p. 97. Standard budget in this case refers to that of the Council of Social Agencies of Chicago.

Food Standards in Determining a Minimum Wage

Some minimum-wage legislation, especially that pertaining to women alone, embodies the requirement that the wage provide for a minimum health and decency standard.[24] Those administering such an act must set up consumption standards, including that for food. To contribute to the setting of such standards, the U. S. Department of Agriculture has prepared two diet plans. The authors of these plans state:[25]

> Both the low-cost and the moderate-cost diet plans assume some discretion in selecting food so that nutritional requirements are met. The extent to which wise choice by the employed woman may be assumed should be decided by the minimum-wage board or committee. One of the problems of budget making is the decision as to what degree of buying skill should commonly be expected of the wage-earning woman with relatively little training in the field of consumer-buying.

Laws may contain specific instructions as to the standard to be met. New York State has recently enacted minimum-wage legislation:[26]

> The standards accepted for the nutrition needs of working women represent a mean between a minimum-cost diet which requires the most careful buying and avoidance of any waste if it is to furnish adequate nutrition, and a moderate-cost diet more nearly available to the average girl. The food requirements were established on the basis of the needs of an average worker. . . . Generally accepted nutritive standards were used to determine varieties of food required and the approximate quantities.
>
> The cost of food for the woman living as a member of a family was based on the cost of raw food consumed at home plus the cost of lunches out on 5 days a week. The cost of food for the woman living alone . . . was based on the cost of three adequate meals per day in restaurants.

The cost of this food standard in 1938 is estimated on page 398. This provides food for 50 weeks only. Food for the other 2 weeks are included with vacation cost. Dual cost standards of this sort complicate

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[24] Some minimum-wage laws prescribe that the minimum wage shall be based on the value of services rendered.

[25] G. S. Weiss *et al., Factors to be Considered in Preparing Minimum-Wage Budgets for Women,* U. S. Dept. Agr., Misc. Pub. No. 324, 1938, p. 7. The diets are based on those described in U. S. Dept. Agr., Cir. 296, 1933.

[26] "The Living Costs of Working Women in New York," *Monthly Lab. Rev.,* March, 1938, pp. 573–4. See also J. Studley, "A Standard Budget for the Woman Worker, in Connecticut," *J. H. Ec.,* Vol. 31, June, 1939, pp. 384–6.

	Population of Cities				
	20,000 to 25,000	25,000 to 50,000	50,000 to 100,000	100,000 and over (not N. Y. City)	N. Y. City
A. Woman worker living alone	$399.00	$410.38	$413.00	$372.75	$374.80
B. Woman worker living as a member of family	188.43	194.39	193.89	189.64	200.64

the administration of the minimum-wage law. The average annual expenditure for food for single individuals for the United States, as reported by the National Resources Committee for 1935–1936, was $313.[27]

Some Continuing Problems

Administrative food budgets of the type discussed are an intimate part of problems growing out of low incomes. They have a role in raising earned incomes and in providing a source of family support in their absence. Adequate food for families receiving public aid cannot be divorced from adequate provision of consumption standards for things other than food. Nor can adequate food for these families be provided irrespective of the scale of living of other families.

Ensuring a Minimum Diet

From many quarters comes the idea that steps should be taken to ensure an adequate diet for everyone. Nations may accept this as a desirable social policy. International organizations may attempt to evolve policies with this objective in view. Various means, such as free foods, subsidies to lower prices of foods important in the diets of low-income families, additional spending power to be used for selected foods, and higher standards for families on relief, may be used to achieve these ends. All these policies call for administrative standards either as objectives toward which to strive or as working standards. These standards must be conceived not only in terms of nutrients but also in terms of foods acceptable to the consumers involved. Suitable means must take into account not only consumers' food preference but also their purchasing practices and the merchandising practices of retailers and others. Professional workers in many fields will be needed. Along with other personnel, nutritionists will have an important place. Their training must include an awareness of social problems and processes far beyond that now customarily attained. To technical competence in advising on nutrients and foods needed and ways of preparing and serving foods must be added imagination in seeing, under various circumstances, the social ways and means of promoting a higher level of nutritional health.

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[27] *Consumer Expenditures in the United States, 1935–36,* 1939, p. 34.

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Food Stamp Plan and Direct-Purchase and Low-Cost Milk Programs[1]

THE food stamp plan and other "surplus"[2] disposal programs were nurtured by the depression. On the one hand, the farmers were clamoring that something be done to raise the prices of many foods that had fallen to a very low level. On the other hand, were thousands of families whose members were hungry and undernourished, lacking adequate food supplies. The attempt to bridge the gap between "surplus" and "need" was first made by the Federal Surplus Commodities Corporation.[3] "Surplus" foods were purchased by the corporation and distributed directly to relief families. At the same time officials of the A.A.A. and members of the staff of the U. S. Bureau of Agricultural Economics were discussing the feasibility of a two-price system for selling food, whereby low-income families would pay a lower price for food than those with a higher income. Many difficulties appeared to confront such an arrangement. Then came the proposal that low-income families be supplied with additional spending power to be used only for the purchase of specified foods. With this as its chief policy the food stamp plan was launched on an experimental basis in 1939; at the same time direct purchase with distribution to relief families was considerably expanded. The popularity of the food stamp plan is attested by the rapidity with which many cities and some rural areas introduced it. Participation was as follows:

June, 1939	50,985 persons
June, 1940	1,488,532 persons
June, 1941	3,705,075 persons

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[1] The most extensive examination of the food stamp plan is made in a special report of the U. S. Dept. Agr., *Economic Analysis of the Food Stamp Plan*, 1940. See also U. S. Bur. Agr. Econ., *Food and Cotton Stamp Plans*, Economic Library List 18 (mimeo.), 1940.

[2] In a strict sense the word surplus is a political term, not an economic term. All products are scarce as long as any price can be secured to them.

[3] "Since August, 1935, activities have been primarily under legislation which annually makes available to the Secretary of Agriculture a sum of money equal to 30 per cent of the customs revenues. This may be used to encourage domestic consumption of agricultural commodities and the development of new uses for them. . . ." *The Economic Analysis of the Food Stamp Plan, op. cit.*, p. 10.

Surplus Disposal Programs

Surplus disposal programs are of several types, for example, the food stamp plan, direct distribution of foods to relief families and to school lunches, and low-cost milk to families and to children. The relative importance of these programs in March, 1941, is indicated by the data in Table 99. In this chapter attention is directed especially to the food stamp plan in comparison with direct distribution to families and to subsidized milk for families. Direct distribution for school lunches and subsidized milk for schools will be considered in the chapter which follows.

Table 99. Domestic Surplus Removal Programs in the Department of Agriculture, March, 1941 *

	Persons Participating (Number)	S. M. A. Expenditure ($1,000's)		Quantity of Food Distributed (1,000's of Pounds)	
		Total	Per person	Total	Per person
Food stamp	3,705,075	8,933	2.41	148,492	40.1
Direct distribution to families	8,034,268	4,553	0.57	157,437	19.2
Direct distribution for free school lunches	4,715,371	2,351	0.50	55,729	11.8
Low-cost milk †					
Distribution to families	491,000	150	0.31	3,534 ‡	7.2 ‡
Distribution to school children	284,000	77	0.27	1,491 ‡	5.2 ‡
Total	11,739,343 §	16,064		372,462 ‖	

* Mimeographed release of Section 7. "Distribution and Processing of Foods," National Nutrition Conference for Defense, May 26–28, 1941, Washington, D. C. Data were compiled from Surplus Marketing Administration, U. S. Dept. Agr.

† Partially estimated.

‡ Quarts.

§ Total persons participating under food stamp and direct distribution programs; members of families frequently participate in other programs.

‖ Quarts converted to pounds on the basis of 2.15 pounds per quart.

Measured in terms of expenditures in March, 1941, the food stamp plan was more important than direct distribution to families and to schools combined. This difference in expenditure does not, however, measure the difference in the quantity of food involved. In direct distribution the Surplus Marketing Administration buys so-called surplus foods in the local on central markets and ships them to schools or to warehouses operated by relief agencies in the various cities, from which they are distributed to relief families. Expenditures for the food stamp plan involve retail prices. Although direct purchase is still important the food stamp plan has more and more tended to replace it. The food stamp plan is, however, still far from being on a national basis; its extension has gone further in the North than in the South.

Public Reaction to the Food Stamp Plan

Reaction to the food stamp plan is compounded of attitudes to two main things: (*a*) getting surplus foods to consumers who appear to need them in order to have better nutritional health; and (*b*) the use of the food stamp plan for this purpose rather than of the direct-purchase plan which it has been steadily replacing.

Table 100. Reactions toward the Food Stamp Plan in a Poll of the American Institute of Public Opinion, November, 1939 *

Population Groups	Attitude to Food Stamp Plan		
	Approval	Disapproval	Without opinion
	%	%	%
Farmers	56	44	15
Relief clients	88	12	8
Urban non-relief	72	28	11
Upper income	60	40	13
Middle income	66	34	13
Lower income	79	21	10

* *Economic Analysis of the Food Stamp Plan, op. cit.*, p. 80.

Whatever the reason there appears to be little doubt that the food stamp plan has met with a great deal of public favor. The American Institute of Public Opinion in a poll, in 1939, found favor to be widespread. (See Table 100.) To many people it seems a "sensible" thing, when "overproduction" and "surplus" exist, to increase consumption of those groups that, according to the prevailing ideas of an acceptable standard, are underconsuming. Furthermore, prevailing social values make the subsidy of food consumption more acceptable than the subsidy of automobiles or cinemas, for example.

Herman writes:[4]

> The Food Stamp Plan represents as successful an attempt as has yet been made to steer between popular and unpopular symbols—"relief," "government competition with private business," "removal of surplus," "want in the midst of plenty," "socialization of food.". . .

How the Food Stamp Plan Works

The major purpose of the plan has been to increase the income of farmers through increasing the spending power of low-income families, by providing them with funds being earmarked for spending on the so-called surplus foods. In administering such a plan, eligibility of families has to be determined and a means provided to ensure that the additional spending power which is provided goes to food, especially to those designated as surplus foods.

The major features of the plan are:

1. All those on relief or employed by the W.P.A. are eligible to participate.[5] The Secretary of Agriculture has power, however, to determine which low-income families should participate. To a limited extent the plan has been extended to "other" low-income families.

2. Participants are usually required to buy a minimum of orange stamps as a condition to receiving free blue stamps. The purpose of the orange-stamp requirement is to assure that the subsidy given in the form of blue stamps will represent a net addition to the consumption of food. The minimum purchase of orange stamps has been based on what is considered the customary amount spent for food by low-income families. In many communities the purchase of one dollar's worth of orange stamps per person per week is required, and 50 cents per person per week in blue stamps is given free. Larger quantities of blue stamps will be given if the quantity of orange stamps purchased is increased. Relief families, who are receiving grocery orders, are given blue stamps if the relief agency agrees not to reduce the money value of grocery orders because blue stamps are provided. If cash relief is given, families must purchase orange stamps up to the amount budgeted for food.[6]

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[4] *Op. cit.,* p. 35.

[5] In 1942 eligibility of W.P.A. families in the relatively high-pay brackets was restricted to those with large families.

[6] Almost from the beginning some modifications occurred in the general rules: "As of January 1940, 60 percent of the participants were required to buy orange stamps; 18 percent were receiving their relief in the form of grocery vouchers rather than cash, so no requirement was necessary; and 22 percent [mostly in the South] were simply given the blue stamps because their cash-relief payments were so low they could not buy the orange stamps." *Economic Analysis of the Food Stamp Plan,* p. 3.

3. Participation must be continuous. Families are not permitted to get their quota of blue stamps one week, drop out the next week, and then come in the next week.

4. Foods are purchased in the grocery stores. The orange stamps may be used for the purchase of any foods. The blue stamps may be used only for the purchase of those foods included on the "surplus" list.

5. The placing of foods on the surplus list is a matter of administrative discretion. Several factors appear to influence selection, for example, price level of food, possibility that price may be raised by inclusion on the surplus list, pressure from producers, and need for improving at low cost the diets of low-income families.

6. The plan is administered by the Surplus Marketing Administration in cooperation with local agencies. Enforcement power in case of violation of rules resides in the right to deny families participation and to withdraw licenses granted grocers to redeem blue stamps. Families are required to use stamps only for food and to use blue stamps only for surplus foods, and grocers are under obligation to accept stamps only for such payments and not for cigarettes, household cleaners, and other products commonly sold in grocery stores. Stamps and foods purchased are to be used by the families receiving them—they are not for sale.

Modification of rules has been continuous, and further changes will probably be made. There has, for example, been much discussion of the need for making the orange-stamp requirement more flexible, setting it so far as possible at the maximum that a family can afford. This rule would result in lowering the requirement for some families and raising it for others. Modification of the ratio of the orange and the blue stamps is also being considered.

> Persons who could not afford to buy, each week, orange stamps worth $1 would be allowed to buy, say, as little as 50 cents' worth, receiving free an equal quantity of blue stamps. Those who chose to receive more blue stamps could do so only by buying a larger quantity of orange stamps, although the ratio of blue to orange stamps would decrease the amount of orange stamps purchased.[7]

Extension of the plan to all low-income families has been proposed. During 1940 the plan was experimentally extended in Shawnee, Oklahoma, to all families with annual incomes less than $1,000. Such extension necessitates the establishment in each locality of an agency to certify eligibility to participate in the plan.[8] The agency, of course, would not deal with relief families and those on W.P.A. They are automatically eligible for participation in the plan once they are certified for relief or W.P.A.

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[7] *Ibid.*, p. 46.

[8] To certify for eligibility it might be necessary to consider current income, past annual income, reserves, family size, and other things. At specified periods eligibility would have to be reconsidered. It might be necessary in some cases to

Some change in basis of selecting products for the surplus list is felt to be desirable. For fresh fruits and vegetables, for example, more attention should be given to local supplies. In addition products especially important in achieving a low-cost adequate diet should be included. At no time in the operation of the plan has this consideration been entirely lacking. It has not, however, been brought sufficiently into focus. One recommendation is [9]

> As a permanent policy, the surplus list ought always to include certain classes of food chosen by competent nutrition experts as those most needed to improve the diets of low-income consumers. The administrators of the food stamp plan could then designate the specific items in each food class on the basis of price and other criteria.

Proposals have been made for imposing rules to cut returns to retailers, for example, by redeeming stamps at less than face value. Such proposals are based on the belief that the food stamp plan has brought retailers some increase in volume of food and as a result the per unit cost of handling food has declined. Furthermore, it is held that retail margins are rigid so that these decreased costs per unit, associated with larger volume, are not reflected in decreased margins. Retailers are likely to protest the proposal as well as the assumption on which it is based. Certainly retail margins are less rigid than some people realize.

Some change may have to be made in the relationship of the administration to state and local relief, to public-assistance agencies, and even to retailers. Concerning the former Herman reports: [10]

> The tendency under the Food Stamp Plan of local communities and states, faced by stringent financial conditions, to shift the burden of relief and public assistance from community and state to the Corporation, by reducing relief and public assistance allowances, cannot be doubted. Whether such a shift can be effectively prevented by the Corporation under present agreements depends upon whether the Corporation can actually, in the face of multiform pressures, withdraw the Food Stamp Plan from a given area once it is promulgated therein.

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take steps to check employers from reducing wages because food stamps were available to employees.

[9] *Ibid.*, p. 53.

[10] S. Herman, "The Food Stamp Plan: A Study in Law and Economics," *J. Bus.* (Univ. Chic.), Vol. 14, January, 1941, p. 35. "Corporation" here refers to Federal Surplus Commodity Corporation.

Herman believes that "by private contract the Corporation has attempted to do what might better be fostered by legislation," and that "sooner rather than later additional administrative powers will be required to make effective an enforcement program. . . ."

Participation by Those Eligible

The proportion of the population eligible to participate varies from city to city. It included in September, 1939, 8.5 per cent of the total population in Seattle, 16.1 per cent in Birmingham, Alabama, and 16.2 per cent in Des Moines, Iowa.[11] Not all those eligible actually participate. A study ". . . in the experimental cities indicates that 75 to 80 percent of the eligible persons may be expected to participate. . . ."[12]

Two types of relief groups participate to a smaller extent than others: those included in programs of "old-age assistance" and "aid to the blind."[13] A study of participation revealed also that families having 9 to 12 members participated somewhat less frequently than did those having 3 to 8 members. "For many of the larger families in the W.P.A. classification the cash outlay required for the orange stamps seemed greater than they were able to make in order to get the blue stamps."[14] The Surplus Marketing Administration, as a result, adjusted the rules. "At present no participant is required to spend more than 50 percent of his public-assistance grant for orange stamps. These adjustments generally apply to W.P.A. families of seven or more."[15]

Relief standards and policy have a bearing on willingness to participate. If relief families have been provided with grocery orders, they are not free to use for other purposes the funds that are budgeted to food. In such a circumstance, few families hesitate to accept free blue stamps. Where cash relief is given, conditions may be very different. If the cash-relief budget is based on a relatively low standard so that the families are spending for food all or most of the cash officially budgeted for it, a large proportion is willing to buy orange stamps up to the amount budgeted for food by the relief agency. When, however, cash relief is given and the relief budget for food is relatively generous, especially in contrast with the amount budgeted for items other than food, the relief families may be unwilling to invest in orange stamps an amount equal to that budgeted for food by the relief agency. The relief agency may plan generous amounts for food and meager amounts for other items. Many families, on receiving cash sufficient to furnish the budget planned, fail to divide their expenditures in the same way as the relief budget indicates—spending more for non-food items. In which case, if families purchased orange stamps equal to the amount which the relief agency had budgeted to food, they would have to decrease their non-food expenditures which were being met out of the amount budgeted by the relief agency for food.

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[11] *An Economic Analysis of the Food Stamp Plan*, p. 27.

[12] *Ibid.*, p. 27.

[13] One reason for non-participation by these groups is failure to maintain households of their own. After the survey that revealed this non-participation, the Surplus Marketing Administration took steps to "require that participation be restricted to persons who have facilities to utilize the commodities." *Ibid.*, p. 28.

[14] *Ibid.*, p. 30.

[15] *Ibid.*, p. 30.

The low participation in the food stamp plan, reported for New York City, is laid by some to the practice of cash relief and to the relatively liberal food allowance provided in the official budget, accompanied by a less generous allowance for the non-food items.

Effect of Food Stamp Plan on the Food Expenditures and Consumption of Participants

The effect of the food stamp plan on the food consumption of participants can be measured in terms of change in total expenditures for food consumption and change in type of food secured. The plan was designed in an effort to insure that the blue stamps would constitute a net addition to food expenditures. To what extent did that occur? Or to what extent did the provision of free blue stamps release money income for the purchase of things other than food?

> There is reason to think . . . that the average preplan food expenditure of many . . . participants was somewhat above the amount of the orange-stamp purchases, so that not all the value of the blue stamps may have represented a net increase in their food consumption.[16]

Some families may be induced, of course, by the offer of 50 cents of free blue stamps for every $1.00 of orange stamps purchased, to spend for orange stamps even more than they spent for food prior to participation in the plan.

The study of the food stamp plan by members of the staff of the U. S. Department of Agriculture concludes: [17]

> In the judgment of the writers, based on first-hand observation of the working of the plan, as well as on the statistical evidence, a conservative estimate would be that about 75 percent of the blue-stamp subsidy represents a net increase in the food expenditures of participants.

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[16] *Ibid.,* p. 4.

[17] *Ibid.,* p. 4. It was felt that with modifications in plan this percentage might be changed.

A systematic field study of selected families has been made. Schedules "regarded as suitable as source material for a study of food consumption and expenditures" were secured from 573 orange- and blue-stamp participants, 503 grocery-voucher and blue-stamp participants and 306 non-participants. The non-participants were similar in income and household size to the participants.

> The most significant difference found between the participants and nonparticipants of comparable economic status in the content of the diets was the higher consumption of eggs, butter and fruit by the participants. There was also a tendency . . . toward a slightly higher average consumption among the participants of most of the items on the surplus list and of most of the major classes of food. . . .
>
> There was a tendency for the diets of the participants to be more generous in every nutrient considered. . . .[18]

A comparison of participants and non-participants, matched for household size and income, showed [19]

> The participants obtained an average of $2.04 worth of food per person per week for cash and stamps, the nonparticipants, $1.78. The former group obtained 47 cents' worth of foods on the surplus list per person per week, amounting to almost one-fourth of the money value of their entire food supply; the latter only two-thirds as much, 31 cents' worth, amounting to less than one-fifth of their money for food.

This group of families increased their consumption more for those foods included on the surplus list than for other foods. Participation in the plan brought an improvement in diets. This improvement appears to be affected by the foods included on the surplus list. The investigators found that participants had greatly increased their consumption of Vitamin A, a nutrient provided by both butter and eggs—items at that time on the surplus list. The diets of both participants and non-participants were found to be deficient in calcium. The investigators point out: [20]

> The list of surplus foods authorized for August and September 1939 [the time the data were secured] did not include any food that makes a significant contribution to the calcium content of the diet,

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[18] *Ibid.*, p. 66. The study was made in Dayton, Ohio, shortly after the inauguration of the plan. It was felt that participating families were not yet taking full advantage of the plan.

[19] *Ibid.*, pp. 69–70.

[20] *Ibid.*, p. 67.

as would be the case had the list included milk in some form or certain green leafy vegetables.

A study of egg consumption made in Des Moines, Iowa, during the summer of 1940, indicated relatively higher egg consumption among the families participating in the food stamp plan.[21] Another study of meat consumption, made in the same city during the spring of 1941, found pork consumption relatively high among this group of families.[22]

The extent to which participants increase their consumption of foods on the surplus list very obviously depends on the number and kind of foods it includes and on the importance of these foods in their former diet. If the foods on the list prior to participation took one-half of total food expenditure, the separation of orange and blue stamps is not going to put pressure on participants to increase their consumption of surplus foods. Producers, in such instances, will derive no advantage from having their products listed as surplus foods, unless their inclusion with the attendant announcement in stores is sufficient to direct attention to the food and, as a result, to increase its consumption.

The food stamp plan provides participation of families with increased spending power for food. This may lead them to increase their consumption of foods on the surplus list along with others. If the foods on the surplus list are of the type that families ordinarily eat much more of as their income increases, their consumption of them may increase relatively more than foods not on the surplus list, even though the distinction between blue and orange stamps does not put pressure on them to do so.

When consumers are given increased purchasing power, a change occurs in their demand for various foods. It increases much more for some foods than for others, and for some foods it actually declines. An increase in purchasing power customarily brings a decrease in the consumption of such foods as margarine, lard in some sections of the country, dried beans, salt pork, salt fish, and evaporated milk. Studies have shown that these foods have a negative income elasticity. If such foods are included on a relatively long surplus list along with foods the consumption of which normally increases with increase in income, a decline in their consumption is to be expected. These facts should be kept in mind by those putting foods on the surplus list for the purpose of raising prices.[23]

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[21] Unpublished study, conducted by R. L. Morse.

[22] C. Van Syckle, *Changes in Food Consumption in the United States and Certain Factors Affecting It* (unpublished thesis), Ia. State Coll., 1941.

[23] See A. Kozlik, "Some Aspects of the Food Stamp Plan as Applied to the Consumption of Fats," *J. Farm Econ.*, May, 1941, pp. 483–6.

Effect of the Food Stamp Plan on Food Consumption and Expenditures of Non-Participants

Two factors introduced by the food stamp plan tend to affect the food consumption of the non-participants. In the first place, the announcements from time to time concerning surplus foods, inasmuch as they call attention to foods that are "economical," may help participants to get maximum returns from their food dollar.

Furthermore, the food stamp plan affects the shares of a given physical supply of food that various families get. In the process, price changes may occur. Additional spending power to be used for food is given to a selected group of families. So far as this makes it possible for these families to eat more food, it decreases the amount of food available for other families, unless the increased consumption of participants is matched by increased production—a circumstance which seems highly unlikely. A rise in the price of some foods, even within a very short period of time, will bring some increase in physical supply; for example, it may bring into the market the low-priced fresh fruits and vegetables that otherwise might not be harvested. An increase in spending power without increase in physical supply brings higher prices. Rising prices will of course cut the amount of food that can be bought by the spending power allocated to food by the participants. It is unlikely, however, that such an increase in prices will be sufficient to wipe out all advantage to this group from receiving the blue stamps. Consequently, some curtailment in food consumption must occur among the non-participants.

The response to higher prices varies greatly with income. Relatively little is known of the price elasticity of different income groups apart from the fact that it is probably greater at the low than at the high income levels. In other words, the lower the income the greater the reduction occurring in quantity purchased as prices rise.[24] High-income families are likely to continue to eat much the same quantity of food as formerly, the higher prices being met by allocating more money for food. But if the total physical supply of food is less for the non-participants in general, a cut in consumption of some families must occur, and it will tend to be greatest among those with the lowest incomes.

The burden of the food stamp plan on non-participants as well as the benefits it brings to participants will depend on changes which occur in supplies. Will a slight increase in price lead to a considerable increase in supply? Or is physical supply relatively fixed? Answers to such questions relate not only to costs of producing additional supplies of the various foods but also to the policy of producers who, through their organizations and the A.A.A. program, formulate production plans and marketing controls.

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[24] See Chapter 13 above.

Effect of the Food Stamp Plan on the Income of Farmers

A prime purpose of the food stamp plan has been to raise farm income. There have been many speculations concerning its effect on total farm income and on the income of producers of surplus crops. The question is asked at times, "Is the increase in farm income equal to or less or more than the amount of the subsidy provided by Federal subsidy?" The special report on the plan made by the U. S. Department of Agriculture expresses the opinion that [25]

> A 400-million-dollar annual subsidy for a National Food Stamp could increase the income of farmers by at least the amount of the subsidy, and possibly somewhat more.

The effect of the food stamp plan on farm income depends primarily upon four things: (1) "The amount of the blue-stamp subsidy; (2) the extent to which this subsidy represents a net addition to the preplan food expenditures of participants; (3) the elasticity of demand of medium and high-income consumers who do not participate in the plan; and (4) changes in marketing charges." [26]

It is conceded that participants probably do not increase their food expenditures by the amount of the blue stamps provided. It is believed, however, that the increase in expenditure by the non-participants, resulting from the greater amounts expended because food prices have risen, is enough to increase total expenditure for food even beyond the amount of the subsidy.

Because farmers get 40 to 45 per cent of the consumer's food dollar, some people are of the opinion that half of the blue stamp subsidy goes to middlemen. In reaching this conclusion they forget that the total marketing bill is probably unaffected so far as the food stamp plan does not affect the total quantity of food marketed.[27] If food supply is increased either because of increase in production or because a larger proportion of crops grown are marketed, a part of the subsidy will go to pay the marketing cost of the additional supply. A larger supply is presumably only forthcoming if there is an inducement of a higher price.

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[25] *Op. cit.*, p. 1.

[26] *Ibid.*, pp. 1–2.

[27] See *U. S. Dept. Agr., Surplus Marketing Administration, Purchasing of Commodities under the Food Stamp and Direct Purchase Programs, May 1939–May 1941* (mimeo.), Aug. 8, 1941. This report states that most of the increase in the retail price of butter, eggs, pork, and other products went to the farmers.

The blue stamps are to be used only for surplus foods. The function of this rule is to concentrate the increased expenditures on selected products. It has already been pointed out that the extent to which this occurs depends on the number and kind of foods included on the list.

> The shorter the list, the greater will be the advantage of those producers whose products are included, but the less will be the incentive to consumers to participate. If the list is lengthened, less control is possible over the benefits to any particular group of producers, although the benefits to agriculture as a whole will not be diminished if preplan food expenditures are maintained.[28]

The Food Stamp Plan versus the Direct-Purchase Program [29]

Debate continues as to whether it would not be better to give up the food stamp plan and return to the direct-purchase program. Although agricultural groups have been the major discussants, the matter should be considered also from the point of view of consumers and retailers.

Low cost of distribution is a major merit claimed for the direct-purchase program. Products are purchased by government agents at farm or wholesale points and shipped to state relief agencies. Local distribution is done with relief or W.P.A. labor. When no account is taken of the cost of this labor, "studies made by the Federal Trade Commission and others . . . indicate that for commodities on the surplus list thus far the . . . cost under the direct-purchase program will average about one-third less than under the stamp plan." [30]

Because, in the direct-purchase program, the subsidy provided is used for buying in or close to the farm market products designated as surplus, many farm groups feel assured that they are getting the benefits to which they are entitled. Benefits from the food stamp plan seem so remote that many farmers are uneasy and uncertain about the returns that accrue to them. The payment of funds out of an agricultural appropriation to consumers, who in turn pay them to retailers and then to other dealers, seems

[28] *Economic Analysis of the Food Stamp Plan,* p. 4.

[29] The surplus-disposal program was begun in 1933. "From October 3, 1933, when the surplus disposal program began, until July 1, 1940, some $565,000,000 worth of farm products were bought from farmers and distributed to needy families and underfed school children. This did not include some $17,000,000 spent for food and cotton stamps during 1939 and the first half of 1940." *Consumers' Guide,* April, 1941, p. 14. Direct purchase still continues. Food for the school-lunch program is purchased, as well as food distributed through state relief agencies.

[30] *Economic Analysis of the Food Stamp Plan,* p. 5.

like a very roundabout process in which many farmers fail to see that they have a part.

To farmers a major merit of the food stamp plan is that by it some assurance is provided that the subsidy will serve to increase total food expenditure by people who get "free food." If relief agencies that give grocery vouchers cooperated in the direct-purchase program by agreeing not to cut food allowance when free foods were distributed, these free foods would not cause food purchases to decline. Free foods, given to families under other circumstances where controls are not feasible might, however, be offset by a considerable reduction in expenditures for food.

> Where the orange-stamp requirement can be applied, the advantages of the stamp plan in maintaining normal food expenditures of participants is likely to outweigh its cost disadvantage from the standpoint of raising farm income.[31]

Retailers naturally favor the food stamp plan over the direct-purchase program, which so far as it handles food that would otherwise be sold by them, reduces their volume of sales. The food stamp plan, on the other hand, bringing a greater supply increases their volume of products. Doubtless there are many retailers who dislike the bother of handling the stamps and the supervision to which they are subjected in the sale of food to participants in the plan. They view, however, the direct-purchase program as an invasion of their field by the government. The general reaction to the plan by this group is, on the whole, very favorable. A study made in one city showed that the majority of retailers even in high-income localities expressed approval.[32]

The food stamp plan appeals to participants very largely because it permits them to choose among various foods; unknown products in no event are forced on them. In that it restricts the amount. of spending power which they have for things other than food, or fails to provide them with free foods because they are unable to purchase the minimum of orange stamps, they may favor the direct-purchase program. Some participants have reported that "the effort involved in coming two or three times a month to headquarters to buy stamps was not so great as that involved in going to commissary to secure commodities." [33]

Social Evaluation of the Food Stamp Plan

In spite of widespread acceptance of the plan, much opposition exists. Some people look upon it merely as a makeshift way of coping with malnourishment among urban families and with poverty among farm families. For one thing, they feel that it has brought a retrogression from cash relief, a major merit of which was that it in no way identified the relief client when making his purchases. They feel that basic improvements in society cannot occur merely by raising the food standard. They dislike the restriction that the food stamp plan imposes on consumer freedom of choice.

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[31] *Ibid.*, p. 3.

[32] *Ibid.*, p. 82.

[33] *Ibid.*, p. 83.

The dominant note at the present time is that provided by enthusiasts who see in the food stamp plan a means of wiping out both "farm surpluses" and malnutrition—two very undesirable things. They would have it extended as soon as possible to all low-income families. It seems highly probable that there will be a shift, for some time at least, to increased attention of the possibilities in the plan for improving the diet of low-income families. This shift is being intensified by the war which, by 1942, had practically eliminated farm surpluses, as they had previously been conceived.

Enforcement Problems

The effect of the food stamp plan obviously depends on whether it operates according to rules. Violations of several types may occur. Families may sell their stamps to neighbors or to the retailers at a discount for cash. Retailers may accept blue stamps for foods not on the surplus list or blue or orange stamps for non-food items. Rumors of violations, in some cities said to be extensive, are abroad. Undoubtedly, these rumors may at some time in the near future call for official investigation.

Subsidized Milk for Families

A part of the funds of the Surplus Marketing Administration is used to provide milk at below-market prices to certified families. Usually relief and W.P.A. families are eligible. Families who certify to secure this milk are limited to a maximum amount. In Washington, "The quantities of 5-cent milk that families could buy were limited and were lower than those usually recommended for adequate diets." [34]

The price paid the farmer for the milk is higher than that paid for milk sold for manufacturing butter, cheese, and evaporated milk, but it is lower than the price paid for that milk which moves into bottles for the regular retail trade.

> It (the milk) is paid for either by the relief families or by city relief agencies at price that ranges from 4 to 6 cents a quart. The price the farmer is paid plus the price per quart charged by the

[34] *J. H. Ec., op. cit.,* p. 174.

> dairies for processing the milk adds up to more than the 4 to 6 cents a quart that is paid for the milk by the consumer of this milk. The difference in cost is footed by the Surplus Marketing Administration.[35]

Early in 1942, the program was in operation in six cities. In some sections the milk is delivered to the family on the usual home-delivery routes of the dairy. In New York City relief families are given milk tickets up to one pint per child, and the milk is secured at the nearby store.

The effect of nickel milk on the milk consumption of families participating in Washington, D. C., has been investigated by the U. S. Bureau of Home Economics. In anticipation of the program families were interviewed before it went into effect. The same families were visited only two months after the nickel-milk program was started, to learn how their milk consumption had changed. Of the 622 families interviewed, both "before and after" the program had started, one-half of the families at the time of the second visit had already taken advantage of it.

> The white families that used the program averaged 2.5 quarts of milk a person a week before 5-cent milk was available and 4.1 quarts afterwards. Similarly, the Negro families moved up their consumption from 1.9 to 3.5 quarts.[36]

Even with these increases, participating families bought less than the maximum amounts to which they were entitled. "Too little money for food" was the major reason given by the families that were getting less than 50 per cent of their maximum allowance. Families who were not participating gave several reasons, including "milk station too far away," "no money to buy milk," "use too little milk." Some reorganization in method of getting milk to families as well as an educational program on the nutritive value of milk may be important in many cities that introduce the plan.

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[35] *Consumers' Guide,* Apr. 1, 1941, p. 14.

[36] S. F. Adelson, "A Quart for a Nickel," *J. H. Ec.,* March, 1942, p. 174. Details of this investigation are to be found in U. S. Dept. Agr. Cir. 645, 1942.

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School-Lunch Programs

Many children are not able to go home for lunch, and the lunches brought to school by the children have frequently been considered far from satisfactory. This was true even when family income was quite adequate. Hot lunches served at school were also felt necessary as a means of improving the nutritional health of many children from low-income families. In addition, they have been considered an important means of teaching nutrition and social behavior.

The inadequacy of lunches brought by many children has been pointed out by Davies. An examination of 1,560 box lunches brought by children showed that 93 per cent of the children had no hot food at noon. She reports absences from school for digestive disturbances to be more frequent among the children who ate lunches brought from home than among those children who went home for lunch.[1]

Factors Promoting School Lunches

Agitation for school lunches is by no means new. It has been a live issue in many communities for several decades. The federal government for many years, through its Agricultural Extension Service operating in rural communities and its official contacts with various parts of the school system, has been carrying on an educational program, promoting school lunches and assisting in their organization.

Increased impetus in recent years has come from several factors. The depression increased the number of children in school who were hungry and showed signs of malnutrition. Increased attention to nutrition has enhanced the importance of good diets for all persons in the population; and special importance has been attached to the diets of children. Recent studies of food consumption and nutritional health and the examination of draftees have indicated widespread malnutrition, especially common in low-income families in which are concentrated a relatively large proportion of the nation's children. The mobilization of women for employment in war industries and other jobs increases the importance of school lunches.

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[1] Esther Davies, *Food Service in Massachusetts Rural Elementary Schools*. Mass. Agr. Exp. Sta. 263, 1930, p. 69.

Two New Deal agencies have had a part. The Works Progress Administration and the National Youth Administration, during the middle thirties, made available a supply of labor that could be used for school lunch programs without cost to the schools, and the Surplus Marketing Administration has made free foods available for needy children.

Additional support for school lunches also came from the Social Security Act of 1935. Funds made available through it could be used for the maintenance of nutrition specialists. They act as advisers and consultants for the local and state people who are interested in school feeding.

> In May 1941, . . . nutrition departments were in operation in 28 States, the District of Columbia, Hawaii, and Puerto Rico.[2]

Beginning in the twenties, school lunches received increasing attention from state legislatures:

> By 1937, 15 States had passed laws specifically, authorizing local school boards to operate school lunch rooms.[3]

In a few states special provision was made for needy children, the requirement in some cases being that they should be provided with meals free and in others that meals for them should be less than cost. Even without state legislation, school boards in some states have established school lunches.

> An increase in State legislation of a mandatory nature for the provision of lunches for undernourished children has occurred within the past few years. A Washington law of 1935 authorized local school boards to order that half-pints of milk be furnished free to children under 14. In its 1940 special session, the Louisiana legislature enacted a law that free lunches be furnished for needy children under the supervision of the State board of education, and appropriated one million dollars for the work. The California legislature in 1937 authorized the levying of special district taxes to meet the expenses of providing free lunches and further authorized State and local relief boards to contribute funds to the school districts for school feeding.[4]

[2] H. M. Southworth and M. I. Klayman, *The School Lunch Program and Agricultural Surplus Disposal,* U. S. Dept. Agr. Misc. Pub. 467, 1941, p. 16.

[3] *Ibid.,* p. 14.

[4] *Ibid.,* p. 14.

The Development of School Lunches in the United States

About 1900, school lunches were started in many of the large cities, and since then a gradual expansion has occurred.[5] These lunches, from the beginning and continuing to the present, have varied greatly in nature. In some places they consist of an apple, an orange, or a glass of milk. In others provision is furnished at the school for heating or keeping hot a food brought from home by the children. Sometimes a hot dish is provided to supplement the food brought from home by the children, and in other schools entire meals are served. The winter program in many places differs from that of the summer, it often being considered more important to have a hot dish for the children in the winter than in the late spring and early fall.

A survey of school feeding in 1918, in 86 cities of more than 50,000 population, revealed some provision for lunches in high schools in 76 per cent of the cities, with lunch service being maintained in only 25 per cent of the elementary schools. The distance which high school children had to travel and the shortness of the noon recess were responsible for the difference.[6]

During the years 1927–1928 and 1928–1929, Davies made a survey of school lunches in Massachusetts towns of less than 5,000. She reports:[7]

> Of the 16,000 children who must remain at school over the noon hour, 6,000 attend buildings where there is no food service whatsoever. [Those with no lunch service were in general in the smaller schools.] Of the 800 buildings, 71 percent have no food service; 23 percent, supplementary service of hot food in cold weather; 3 percent, milk service; and 3 percent, meal service.

The expansion of the schools having a school-lunch program and receiving foods from the Surplus Marketing Administration is shown in Table 101. In March, 1941, 4.7 million children were included, and 85 per cent of them were in schools that prior to the Surplus Marketing Administration had had no school-lunch program. These children constituted 17.4 per cent of the total school enrolment in the country. The proportion is relatively high in the South, but in each region it varies greatly from state to state; 62 per cent of the children enrolled in Georgia were getting food from the school lunches supplied with free foods by

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[5] Two books had a great deal to do with the development of an interest in school lunches in its initial stages, namely, R. Hunter, *Poverty,* 1904, and J. Spargo, *The Bitter Cry of Children,* 1906, Chapter 2.

[6] See *The School Lunch Program and Agricultural Surplus Disposal, op. cit.,* p. 13.

[7] *Op. cit.,* p. 68.

Table 101. Status of School Lunch Program of Surplus Marketing Administration *

Year	Number of		Food Distributed Free	
	Children	Schools	Pounds	Estimated retail value (dollars)
1937	342,031	3,839	1,192,256	85,062
1938	567,000	11,021	3,944,770	201,318
1939	892,259	14,075	5,244,211	408,804
1940	2,483,578	35,658	14,704,698	1,177,233
1941	4,715,311	66,783	36,000,589	4,368,371

* U. S. Dept. Agr. Misc. Pub. 467, 1941, p. 2.

the Surplus Marketing Administration, whereas in Kentucky the proportion was only 3 per cent. (See Fig. 18.)

One-room rural schools have always presented special problems in providing school lunches. Some increase in their provision for lunches has occurred, however. In some communities striking innovations are taking place: "The W.P.A. is experimenting successfully with the development of central kitchens to prepare food for delivery by trucks to rural schools throughout a wide area." [8]

The income status of the children served by school lunches receiving food from the Surplus Marketing Administration is indicated by the following report:

> What scattered statistics were available in the field, and published statistics on public assistance, indicate that about two-fifths of the children in the program came from relief families and another 30 percent from families dependent on W.P.A. for their income. This leaves about one-third of the children presumably from low-income, borderline families.[9]

Free foods from the Surplus Marketing Administration are restricted to needy children. The recent expansion has thus tended to concentrate "in those localities where incomes were the lowest and where previously there were few or no facilities for serving lunches. The elementary schools, especially in rural communities and economically distressed areas, have benefited particularly." [10]

The lunch program is in some communities on a 12-month basis. In 1940, 250,000 children benefited from summer lunches. They operated in community centers, playgrounds, parks, and schools. Camps for underprivileged children made good use of the summer-lunch program.[11] In 1941, the Surplus Marketing Administration announced that it stands ready to continue through the summer the aid it has given during the school year to local communities that care enough about their handicapped children to provide for them one square meal a day.

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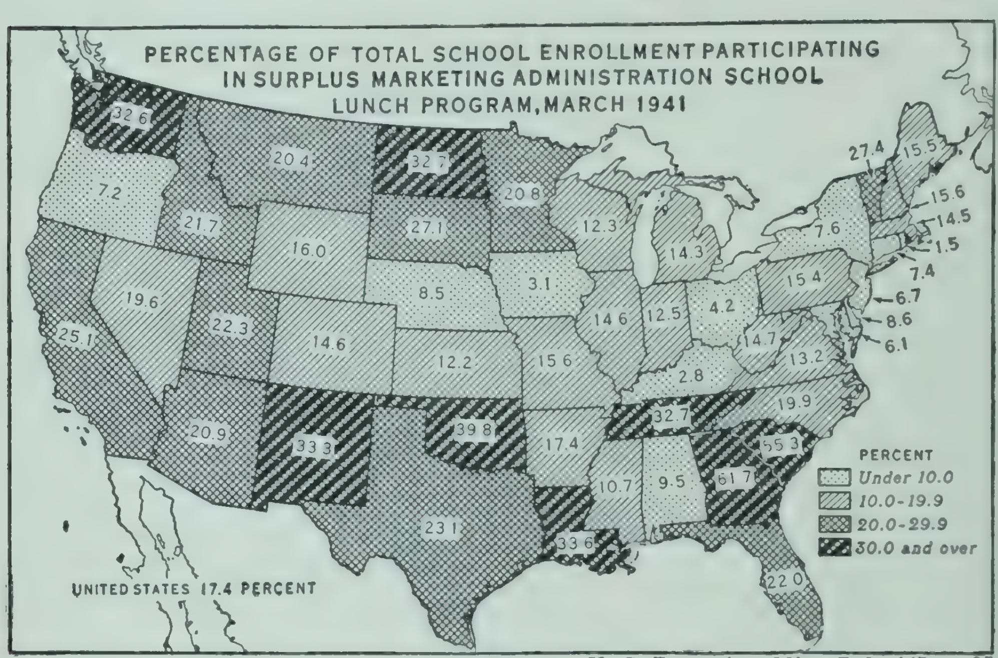
[8] *Ibid.,* p. 32.

[9] *Ibid.,* p. 28.

[10] *Ibid.,* p. 28.


PERCENTAGE OF TOTAL SCHOOL ENROLLMENT PARTICIPATING IN SURPLUS MARKETING ADMINISTRATION SCHOOL LUNCH PROGRAM, MARCH 1941
32.6
20.4
32.7
20.8
27.4
15.5
7.2
21.7
27.1
12.3
15.6
14.5
7.6
1.5
16.0
14.3
7.4
3.1
15.4
8.5
6.7
19.6
4.2
14.6
12.5
8.6
25.1
22.3
14.7
6.1
14.6
12.2
15.6
13.2
2.8
19.9
32.7
20.9
39.8
55.3
33.3
17.4
10.7
9.5
61.7
23.1
33.6
22.0
PERCENT
Under 10.0
10.0-19.9
20.0-29.9
30.0 and over
UNITED STATES 17.4 PERCENT

U. S. Dept. Agr. Misc. Pub. 467, p. 27.

FIG. 18. Participation was generally highest in the depressed agricultural areas of the South and the Mountain and Western Plains regions.

The Surplus Marketing Administration estimates that the program is as yet far from being adequate:[12]

> There are nine million undernourished children in this land of ours—nine million children from families whose incomes cannot provide the food they need—nine million children who will not grow up to be healthy citizens of the future, unless we do something for them now.

Schools Receiving "Surplus" Foods

The Surplus Marketing Administration makes surplus commodities available for lunches for "needy" children. The amount of food made available to any one school depends on the number of children certified as needy.

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[11] *Consumers' Guide,* Mar. 1, 1941, p. 2. See also the number issued August–September, 1941.

[12] Surplus Marketing Administration, *School Lunches and the Community.* SMA–SL7 (leaflet).

In order to get free food, sponsors of the school lunch must agree that their customary food purchases for school lunches will not be curtailed because of the surplus foods being made available. No standard of previous purchase is, however, available, and no mechanism as in the food stamp plan is provided to ensure that the free food given to the school constitutes an addition to the previous purchases. Since the provision of this free food plus the availability of labor without cost to the school through the W.P.A. has led many schools to provide school lunches for the first time, it seems highly probable that the free foods distributed do represent, in considerable measure, a net addition to consumption.

No charge can be made for the foods which are served to the needy children. If paying children as well as non-paying children are fed, a distinction must not be made between them in the type of lunch served. An effort is made in a school with both paying and non-paying children to have procedures so organized that no distinction is apparent.

A lunch project which is operated for profit cannot receive the free commodities, no matter how many free meals are provided.[13]

The free foods are shipped from warehouses which are maintained by state or local welfare agencies. The maximum quantities which a school may secure monthly for each certified child have been set up by the U. S. Bureau of Home Economics.[14]

> Surplus commodities are intended, primarily, to supplement sponsors' own food procurement for lunch projects. There is no guarantee to supply continuously a sufficient variety of food to provide a varied and nutritionally balanced menu. Some schools do get along almost entirely on surplus foods, especially in the poorer communities or where only fruit or other uncooked food is served. . . .
>
> The local welfare agency notifies each school at regular intervals what commodities are available for distribution and the maximum quantities it may receive.

The supplies, at least in some areas, are shipped to the schools once a month. This practice limits the free foods provided to the more staple products. Some small schools without adequate storage have found themselves hard pressed for space suitable for the products. In spite of freedom to choose among surplus foods available, unsuitable foods in some places at times arrive. A school in a small town in Iowa, for example, during 1941, received 25 pounds of lard in one monthly shipment, a food not especially suitable in lunches for school children for whom pastries and fried foods are largely tabu.

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[13] *The School Lunch Program and Agricultural Surplus Disposal,* p. 17.

[14] *Ibid.,* p. 23.

It is not strange that a program which has expanded so rapidly, especially in schools in smaller towns and in those which are more poorly equipped with storage and other facilities, should have criticisms concerning its operation. Complaints, for example, arise because the foods provided have been selected according to the existence of a surplus and not on the basis of nutritional need.

> Many nutritionists pointed out that a better choice of foods could be made if the program were operated primarily to make a maximum contribution to school lunches. They criticized particularly the excessive quantities of cereal foods supplied, pointing out that these foods furnish chiefly carbohydrate, which is the food element least likely to be deficient in the diets of needy families. They suggested that from the nutritive point of view the money might better have been spent for more protective foods.[15]

Some people have raised the question of whether the school-lunch program should not be organized to operate in much the same way as the food stamp plan, which, as has already been pointed out, is replacing direct distribution of surplus foods to families. As this change has occurred, welfare agencies have had to maintain warehouses for foods going only to schools. Some people have also felt that such a shift would give schools greater freedom of choice. Southworth and Klayman report, however:[16]

> The S.M.A. does not plan to make such a change, for various reasons. In the first place, direct purchases are considered to have special advantages over the Food Stamp Plan for handling certain kinds of surplus problems. In some acute market situations, it is believed, prompt action by a S.M.A. buyer can forestall a disastrous break in prices to the growers that could not be prevented by placing the commodity on the stamp plan list. The direct-purchase programs have a permanent place in the general scheme of surplus disposal because of the greater flexibility they are considered to offer in dealing with particular kinds of surplus situations.

Direct purchase is also favored because of the economy of the marketing operation in getting supplies to the schools.

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[15] *Ibid.*, p. 59.
[16] *Ibid.*, p. 56.

School-Milk Programs

School-milk programs have been designed to provide needy children with milk free or at a penny a half pint. Southworth and Klayman have briefly summarized this program:[17]

> The penny-milk experiment was first tried successfully in Chicago during the last 14 days of school in June 1940. The program was extended in the following school year and was serving over one-half million children in eight city areas in May 1941. . . .
>
> The actual operation of the school-milk programs is made possible through the joint cooperation of milk producers, milk dealers, the city welfare and school authorities, and the Federal Government. Producers supply the milk for distribution to schools at a price below that which they get for fluid distribution . . . but above that which they get for milk sold for processing into cheese, butter, etc. . . . The money collected from the children is paid by the city welfare authorities to the local milk dealers. These dealers submit competitive bids to the Government for the business of processing and delivering the milk to each of the schools and the lowest bid is accepted. But even with reduced producers' and dealers' charges, the costs . . . are somewhat higher than the penny price for which the milk is sold. To make up the differences the government pays indemnities to the handlers, drawn from funds that are earmarked for surplus-removal programs. . . .
>
> In general only schools in low-income areas are certified for participation. Every child attending school is then eligible to buy a half-pint of milk for a penny. In some cities . . . the milk is distributed free to children in special schools and is paid for out of welfare funds. . . .
>
> In Birmingham, each child must be certified by local authorities as needy. Children who have been certified may buy the milk for a penny, while the others have to pay the regular price of 3 cents.

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[17] *Ibid.,* pp. 25–6.

Et. Burnett and W. R. Aykroyd, "Nutrition and Public Health," *League of Nations, Quart. Bul. Health Org.,* Vol. IV, No. 2, June, 1935, p. 464, report penny (approximately 2-cent) milk for school children in England. "For a penny a day, children can belong to a Milk Club and receive one-third of a pint of milk daily. This scheme was extended by the Milk Act of 1934: All schools under the control of the State or education authorities may participate in the scheme; in other words, it is the working-class children who mainly benefit by it. . . . About 3 million children benefit by the present organization."

Financing the School-Lunch Programs

Some school-lunch projects are operated in which payments made by the children cover all food costs. In a small number of projects labor and management expenses also have been met out of these payments. In practically every case the school has had to finance the equipment and space. The provision of lunches to children unable to pay has been met in various ways, for example: (1) out of regular school funds in the same way as the salaries and classroom supplies; (2) by special donation days sponsored by the school during which sums of money are secured from the children as well as other people in the community; (3) by gifts from such organizations as a parent-teacher association that assumes responsibility for raising the funds; (4) by donations of surplus vegetables from the families of children who share in the school lunches and from others in the community, these vegetables being canned at the school or at home.

The multitude of ways of financing and organizing school lunches is a characteristic of innovations in general. It seems highly probable that, as time goes on, school lunches will be accepted as a normal part of the school program and given a place in the design of the school building and a place in school budgets.

Specialized Supervision

The nutritional advantage of school lunches depends in large measure on care in planning menus and in preparing and in serving food. In the larger centers a specialist is hired who assumes responsibility for these things. In other schools the responsibility falls on the home-economics teacher, who may or may not already have a full program without this assignment. In other situations an untrained person may be hired by the school and put in charge or else local groups, for example, the parent-teacher associations, may manage with volunteer assistance.[18] No study has been found that reports differences in menus and other characteristics of importance, according to the training of the supervisor.

Many organizations—the Agricultural Extension Service, the Public Health Service, and the American Red Cross, as well as the Surplus Marketing Administration—have attempted, through an educational program including the provision of suggested menus, to make available the advice of specialists to schools in small communities.

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[18] Parent-teacher associations, mothers' clubs, and special parents' committees cooperate in 67 per cent of the school-lunch projects, receiving foods from the Surplus Marketing Administration. See *The School Lunch Program and Agricultural Disposal, op. cit.*, p. 31.

Feeding School Children in Other Countries[19]

Provision of meals for school children has received much attention in England. In 1905 a government committee was appointed to report on what was being done in school feeding. A substantial amount of feeding was found. In 1906, a bill was

> drafted on the principle that the provision of school meals should be administered by the Education Authorities and made capable of a direct charge on the rates. It permitted approved voluntary schemes, schemes partly voluntary and partly rate-aided, and others wholly rate-aided. Its object was to ensure that children attending public elementary schools shall, so far as possible, be no longer prevented by insufficiency of suitable food from profiting by the education offered in the schools, and it aimed at securing that for this purpose school meals should be available both for the children of parents who can pay and for those who cannot.[20]

In 1914, the act was amended to legalize feeding on the days school was not open. Newman reports:[21]

> Even as recently as 1931–32 only half of the Local Education Authorities undertook school feeding. Public opinion, however, began to demand more, and in 1933–34 there were about 200 Authorities providing some kind of supplementary school feeding (meals and milk), and in 1936–37 this figure had risen to 247 out of 316 Local Education Authorities.

Burnett and Aykroyd report:[22]

> During the year 1932–33, the number of meals provided rose from 47,858,200 (1931–32) to 62,304,600 and the number of children fed to about 400,000 (as compared with 320,000 in 1931–32 . . . 265,000 in 1929–30). The meals included 3,118,613 breakfasts, 22,116,042 dinners, 1,236,965 teas, 32,255,262 "milk meals" and 3,577,789 "other meals."

Newman reports:

> Milk feeding at school began, in London, at an early date (1908). In 1922 a National Milk Publicity Council was formed, partly in the interest of the dairy industry, and in 1924 a school milk service was put into operation, which by 1931–32 was providing upwards of 30 million milk rations to more than 800,000 children. In 1934, by the

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[19] See also U. S. Dept. Agr. Misc. Pub. 467, *op. cit.*, pp. 10–3.

[20] Sir George Newman, *The Building of a Nation's Health*, 1939, p. 328.

[21] *Ibid.*, p. 331.

[22] *Op. cit.*, p. 407.

> milk-in-school scheme, three million children received daily milk rations at school, and many of them during school holidays also.[23]
>
> The Board of Education of the United Kingdom has recently appointed an expert inspector whose duty it is to visit the centres at which free meals are provided, and from the dietetic point of view advise the authorities as to the dietary and the preparation and service of the meals provided.[24]

The war has brought in Great Britain increased effort to expand and to improve school lunches and to increase the number of children receiving milk. A report made during 1942 states: [25]

> School feeding existed before the war but was primarily for "necessitous" children. Wartime school feeding is designed for all children, partly because of the need of getting women into industry, but largely because it is realised that growing children have special dietary needs that are frequently not being met at home, especially when many important foods are rationed under a system that does not take into consideration the special needs of children.

The number of school children getting midday meals at schools doubled from 1940 to 1941. Even so, the proportion being thus served was small. To stimulate further their provision, subsidies were increased: [26]

> From October 1, 1941, the minimum grant to public elementary schools by the Board of Education on the cost of providing school meals was raised 70 per cent. The maximum grant is 95 per cent. of the cost.

Other European countries have for many years had school-lunch programs.

Burnett and Aykroyd report about destitute elementary school children in France receiving food along with clothes and books as early as 1870. "Sometimes soup was provided to children in the morning on arrival and tea (a light meal) in the afternoon. . . . The tendency is toward free feeding." [27]

School feeding in Oslo includes breakfasts that are provided to 30 per cent of the children attending public schools. In the poorer districts the proportion is about 50 per cent.

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[23] *Op. cit.*, p. 339.

[24] League of Nations, *Survey of National Nutrition Policies, 1937–38*, Pub. II. Economic and Financial, 1938. II. A. 25, p. 80.

[25] International Labour Office, *Food Control in Great Britain*, Studies and Reports, Series B (Economic Conditions), No. 35, 1942, p. 137.

[26] *Ibid.*

[27] Et. Burnett and W. R. Aykroyd, *op. cit.*, p. 406.

Policy Questions

There is no doubt that school feeding has a place in a broad program of raising the level of nutritional health, both because of its educational value and the need for ensuring that children receive adequate diets. Many policy questions are still being debated.

Should lunches be free for all children in a given school or only for the needy? There are those who feel that the separation of children in a school on the basis of ability to pay is socially undesirable. Children, they point out, are highly sensitive and should be spared any stigma associated with relief status. Two types of action may eliminate the stigma: (1) the provision of free lunches to all children in any school that is attended by children unable to pay; and (2) the distribution of tickets to the children in such a way that there is no obvious separation of "needy" from other children.

Should the feeding program include supper or breakfast? If provision of good nutrition of children necessitates free meals outside of school hours attention should probably be directed primarily to ways and means of raising the nutritional level of the family as a whole. Provision of breakfasts and late-afternoon or evening meals at school may seem necessary for children of "working" mothers who leave home too early in the morning and return too late in the evening to see that the children are provided with satisfactory food.

There are also questions concerning the role of federal subsidy. In 1942 the war program is causing careful scrutiny of expenditures in an effort to see where "savings" can be made. Southworth and Klayman, in reporting for the Department of Agriculture, state:[28]

> Doubtless many of the [school lunch] projects that have developed with Federal aid during the last few years could be continued by local sponsors, on a reduced scale, if Federal aid were withdrawn. But a large proportion of them have not had time to become sufficiently entrenched in their communities, or their communities simply have not the resources, to make this [continuation] possible.

They consider it highly probable that[29]

> programs to increase domestic consumption of farm products will continue to be part of national policy for some years to come. During that time the School Lunch Program may establish itself securely enough in our national life to be safe against discontinuance caused by ultimate revisions in agricultural policies through which it now receives support.

[28] *Op. cit.*, p. 56.

[29] *Ibid.*, p. 64.

Those who look upon federal aid in providing school lunches as a means of disposing of so-called surplus foods will naturally feel that such aid should be discontinued when food scarcities rather than surpluses become administrative problems. The increasing orientation on the part of the public and of certain administrative agencies toward the importance of nutritional health and the place of the school-lunch program in promoting it should be sufficient, however, to ensure an expansion of school lunches during both the war and the postwar years. It may be that, as tax burdens mount for middle-income families, there will be increased interest in having free meals provided for all school children, not just for those classed as "needy."

22

Taxes on Food

Several types of taxes on food will be considered here: (1) customs duties on food entering the United States; (2) license fees and excise taxes affecting margarine; (3) sales taxes designed largely to raise revenue; and (4) business taxes such as those imposed on chain stores. Reasons for and effects of these taxes in many cases are very complex. Hence it is possible here to do no more than give the reader a brief introduction to them indicating sources of facts and analysis useful in further study.

Custom Duties [1]

When the United States is compared with many prewar European countries, custom duties on food appear relatively unimportant here by contrast. Until the early 1920's, customs duties were the principal means used to lessen competition from industries located outside the United States. Since that time the control over volume of foreign goods entering has been effected in large part by a system of quotas that specify the quantity of product to be imported. Restriction of imports by quotas and custom duties both have price-raising effects.

Sugar is one of the important foods subject to custom duties and import quotas. In discussing their cost to consumers Dalton, in 1936, writes: [2]

> Sugar consumers of the United States give the industry an assistance—in the form of an enhancement of the domestic price over the world price—of nearly 2 cents a pound, or approximately $2 per person each year, making a national contribution of over $250,000,000.

In discussing the present quota system he says: [3]

> *From the point of view of the consumer, the quota system has raised the "tariff" on raw sugar. . . .*

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[1] For a good, short, general discussion of international trade see F. B. Sayre, *America Must Act,* World Affairs Pamphlet 13, 1936.

[2] J. E. Dalton, *Sugar, a Case Study of Government Control,* 1937, p. 275. See also L. S. Ellis, *The Tariff on Sugar,* 1933.

[3] *Ibid.,* pp. 281–2.

> Under the old tariff system, the price of sugar had been artificially raised by the amount of the duty; under the quota system the amount of the duty became of secondary importance and the world price became of little concern to domestic producers. The present "artificiality" of the price lies in the fact that an administrative office determines how much sugar shall enter the United States market. . . . The quota method of control places the major responsibility upon an administrative officer, the Secretary of Agriculture.

As a means of minimizing costs to consumers and at the same time giving some subsidy to sugar producers in the United States, Dalton suggests that a direct-bounty system be used "under which payments in varying amounts can be made to producers roughly in accordance with their needs." He considers that "our present sugar protection is unique contrasted with that of other countries where direct agricultural bounties are made to producers under conditions prescribed by the central governments."[4] Its uniqueness lies in the burden that it imposes on consumers in contrast with the amount of protection provided to high-cost producers whose production the country desires to stimulate.

In 1934 a report of the Commission of Inquiry into National Policy in International Economic Relations was published. The commission was an outgrowth of action of the Social Science Research Council, and drew its membership from a wide range of interests and areas. The economic measures recommended included "The removal of tariffs in all cases in which no serious addition to unemployment would result." Among the tariffs specifically mentioned, and bearing on food, are the following:

> (*a*) Tariffs on non-competitive products.
> (*b*) Ineffective rates.
> (*c*) Tariffs on goods of which we import almost all our domestic consumption.
> (*d*) Tariffs on seasonal imports.[5]

Reductions that would cause unemployment, the commission felt, should be made very gradually and should be accompanied by plans for the expansion of other industries to absorb the displaced labor.

Among the ineffective duties listed were those on canned and dried fruits. The United States is a large exporter of these products. Goods not produced in the United States which, it was felt, should be imported duty free include exotic foodstuffs such as mangoes, Brazil and other nuts, dried mushrooms, and caviar.

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[4] *Ibid.*, p. 283.

[5] *Report of the Commission of Inquiry into National Policy in International Economic Relations*, 1934, p. 7.

Olive oil, which in bulk bears a duty of 6.5 cents a pound, is important among the foods which are supplied almost wholly from the outside. Imports supplied from 97 to 99 per cent of domestic consumption for 1921–1929.[6] The cost of duty on this product to consumers is high.[7]

> At the present rate of duty American consumers contributed during the years 1921–29 at least 4.75 million dollars a year to the United States Treasury for the protection of a form of agriculture occupying less than 26,000 acres of land and an oil-pressing industry with perhaps an investment of one million dollars. The cost to the consumer, however, was more than this because the retail price, as a result of pyramiding, is raised more than the duty.

The commission felt that "Here is a case for a subsidy if it is deemed desirable to support the olive oil industry."

Vanilla is among the foods consumed here which are not produced in the United States. It competes, however, with synthetic vanillin, which is manufactured by the chemical industry. The commission states:[8]

> There seems no good reason why the housewives of the country should pay a high price if they want genuine vanilla extract.

Seasonal perishable foods such as "tomatoes, green peas and beans imported from the East Indies and Mexico during a few winter months when domestic production is small," it is felt, might be imported duty free. The commission suggests that whatever tariff is levied should be made inoperative during the month when domestic production is very low.[9]

Custom duties and quotas are the major control techniques of international trade. They have an important bearing on the price consumers pay for selected foods. Even more important in the minds of some people is their political significance. For example, at the present time many people feel that increased quantities of Argentine beef should be imported, especially in the form of canned beef.[10] This is held to be important not only because meat prices in this country have been rising sharply, but also because friendly relations and political influence within a country are affected by the trade in which it engages.

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[6] *Ibid.*, pp. 61–3.

[7] *Ibid.*, p. 64.

[8] *Ibid.*, p. 66.

[9] *Ibid.*, p. 67.

[10] There is a quarantine against other beef from the Argentine because of the prevalence of foot and mouth disease among the cattle in that country. The claim is, however, made that cattle raisers in this country use the prevalence of the disease in one part of Argentine as an excuse to secure the exclusion of meat from all parts of the country.

The war has suspended temporarily most tariff issues. They raise major problems in postwar planning. What kind of an international economy is to be evolved? Plans for this have to go hand in hand with political controls. Full use of resources and equity in sharing not only within but also among nations are essential if world peace is to be established on a firm foundation.

Margarine Licenses, Taxes, and Other Regulation[11]

Since taxes on margarine are intimately related to regulations governing its sales, it seems desirable to consider them together. The standard of identity is to be discussed later.[12]

Existing Regulations

Federal excise taxes and license fees bearing on margarine were first imposed in 1886, those now imposed being based on the legislation of 1902. The annual license of wholesalers of uncolored margarine is set at $200 and that for retailers at $6.00. The licenses for those processing and handling colored margarine are much higher, being $600 for manufacturers, $480 for wholesalers and $48 for retailers.[13] In addition, the 1902 act imposes an excise of 10 cents a pound on colored and one-quarter of a cent a pound on uncolored margarine. About 1909, manufacturers began to use peanut and soybean oil that imparted a natural yellow color to the margarine. At first, the 10-cent tax did not apply to this margarine. In 1931, however, Congress declared that the 10-cent tax applied to all yellow margarine whether naturally colored or not. Sundelson points out that this "marks the only instance in which Congress has granted an industry [butter] a monopoly of color."[14]

In addition to a heavy tax on colored margarine three cents per pound is imposed on coconut oil—at one time the major fat used in manufacturing margarine. Divided interests within the industry were in part responsible for this tax. Domestic oil producers became interested in protecting "their" market against coconut oil. In addition some of the margarine processors, especially those located in the Middle West, favored the exclusion of coconut oil. Some support to the legislation was given for another reason. Some processors felt that by making margarine a domestic product it might be possible to gain more public support for the industry in general. In 1934 the three-cent excise tax was imposed. In addition many of the states enacted taxes discriminating against foreign oils. In 1933 coconut oil made up 75 per cent of the total fat used in the manufacture of margarine. In 1940 domestic vegetable oils made up 80 per cent.[15]

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[11] The author is especially indebted to Elizabeth Fautz for the suggestions concerning this section, and also to B. W. Hammer for his appraisal of it.

For extensive discussion see *Barriers to Internal Trade in Farm Products, op. cit.*, pp. 17–30; W. R. Pabst, *Butter and Oleomargarine: An Analysis of Competing Commodities*, 1937, especially Chapter 4; W. R. Pabst, "Trade Barriers and Oleomargarine Taxes," *Southern Econ. J.*, Vol. 7, April, 1941, pp. 505–17; W. T. Mickle, "Margarine Legislation," *J. Farm Econ.*, August, 1941, pp. 567–83; and Works Progress Administration, *Barriers to Trade Between States*, Marketing Laws Survey, 1939. Also see K. Snodgrass, *Margarine as a Butter Substitute*, Fats and Oils Studies of Food Research Institute, No. 4, 1930.

[12] See Chapter 25.

[13] See *Barriers to Internal Trade, op. cit.*, p. 17.

[14] J. W. Sundelson, "Banning the Use of Margarine through Taxation," *Tax Barriers to Trade*, Symposium by the Tax Institute, 1941, p. 90.

Regulations by the separate states are of several types: In most states accurate labeling only is required. In many states stores are required conspicuously to announce that margarine is sold, and public eating places are required to notify patrons when margarine is served. One-half of the states forbid the use of margarine in state institutions. Two-thirds of the states prohibit the sale of colored margarine. In New York and Illinois the sale of margarine resembling butter is prohibited. The avowed purpose of many of these rules has been the protection of the consumer from fraud.[16] Conspicuous labeling bearing on matters important to consumers contributes most effectively to this purpose. As in many other instances of state regulation, an industry, in pressing for protective legislation, has attempted to obscure its true objective by claiming that consumer protection is sought.

Some attempts have been made to get legislation prohibiting the sale of butter substitutes in which milk or cream has in any way been used—their use improves the palatability of margarine. This prohibition has either been declared unconstitutional or has been defeated by popular referendum.

Since 1929 a great increase in state excise taxes has occurred. They now exist in over one-half of the states. A 15-cent per pound tax is, for example, levied in both Washington and Wisconsin. In some states high dealer-licenses have been imposed. A high license tax on a retail store is likely to be especially effective in checking sales in a small community and in preventing margarine's being available in thousands of small retail stores through which a large part of the food supply moves.

Many recent margarine taxes, in both the cotton- and the cattle-producing states, have differentiated the tax on the basis of the fat used. Cotton-producing states tend to discriminate against coconut oil, whereas

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[15] *Agricultural Statistics*, 1941, p. 456.

[16] In some instances there is frank acknowledgment that the purpose is industrial protection.

Minnesota, Nebraska, and Wyoming penalize cottonseed oil along with coconut oil by "providing for an excise tax on all margarine not containing a substantial percentage of animal fats." [17] These rules bear on international trade; thus we have, "in the case of the state excises on margarine which exempt it from a tax when manufactured from domestic oils, the appearance of something that bears a resemblance, at least, to state protection against foreign competition." [18]

From time to time these regulations have come in for a good deal of discussion. The growth of interstate trade barriers during the early thirties brought, by 1938, increased concern as to their effect on the American economy. There arose agitation for the removal of margarine taxes as well as other interstate barriers to trade. In 1941 the promulgation of the standard of identity for oleomargarine by the Federal Security Agency [19] was the occasion for a considerable increase in the controversy over margarine taxes and regulations in general.

Effect of Regulation on the Consumption of Margarine

Regulations affect consumption by affecting prices and the type of margarine offered for sale and consumers' judgment of its merits.

The effect of regulation in states having excise taxes is revealed by the amount of the revenue collected. In 1937–1938 the 10-cent tax of Wisconsin yielded $13 and that in Washington brought no revenue; whereas the 5-cent tax in Iowa netted a revenue of $315,330.

The effect of the tax is also reflected in the number of retail stores having licenses to sell margarine. In the states having a sales tax on all uncolored margarine the number of retailers licensed to sell uncolored margarine fell by 80 per cent from 1928 to 1937. In states having a sales tax on margarine, but exempting that manufactured from such oils as cottonseed and oleo, the number of retailers licensed rose by 60 per cent from 1928 to 1937. Eight out of twelve of the states in this group were located in the South—for them an increase of 124 per cent is reported. For the six Southern states having no excise tax the increase during the same period was 129 per cent.[20]

After studying state by state the shift from 1929 to 1935 in the percentage of stores licensed to sell uncolored margarine, Taylor concludes that the excise tax and high retail license fees probably "do substantially curtail margarine consumption." [21]

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[17] *Barriers to Internal Trade in Farm Products*, p. 20.

[18] *Ibid.*, p. 25. Taylor points out that the constitutionality of such legislation remains to be determined.

[19] See pp. 496–502.

[20] *Barriers to Internal Trade in Farm Products*, *op. cit.*, p. 23.

[21] *Ibid.*, p. 24.

Up to date, little attempt has been made through family expenditure studies to reveal the effect of margarine regulations on consumer habits. The data in Tables 102 and 103 indicate clearly that a considerable variation in consumer habits occurs, that the consumption of table fats other than butter decreases with increase in income,[22] and that the occurrence of a high tax on all margarine greatly checks its consumption.

Table 102. The Average Pounds of Table Fat, Other Than Butter, Purchased for Every Pound of Butter; Families of Wage-Earners and Clerical Workers, in Selected Cities; Classified by Type of State Regulation and by Region, 1934–1936 *

Economic Level (per Expenditure Unit, Dollars per Annum)	Yellow Color Permitted and No Tax	Yellow Color Prohibited and No Tax	Yellow Color Prohibited and Tax on All Margarine
Selected Cities in North Central Region			
Under $400	115.8	63.2	1.3
$400–$600	42.5	22.3	0.0
$600 and over	23.4	13.6	1.2
All	57.6 †	30.6 ‡	0.5 §
Selected Cities in the Southeast ||			
Under $400	198.0	116.9	19.4
$400–$600	24.4	34.5	19.0
$600 and over	8.0	28.0	7.8
All	36.1 ¶	64.1 **	15.9 ††

* U. S. Bur. Lab. Stat. Bul. 636 and 640. Peanut butter was included with the other table fats. Furthermore, some of the margarine doubtless was included with the cooking fats. Details concerning the regulations by states were taken from W.P.A. Marketing Laws Survey, *op. cit.*

† Indianapolis, Ind.

‡ Cincinnati, Ohio. Data are available for several Ohio cities and considerable difference occurs among them. Cincinnati is neither high nor low among the Ohio cities included in the Consumer Purchases Study with respect to the importance of table fats other than butter.

§ Milwaukee, Wis. The state tax in Wisconsin is 15 cents a pound.

|| Considerable difference is reported for the various Southern cities. The three states reported here were selected because they were close together and because Tennessee is the only Southern state with a tax on all margarine.

¶ Richmond, Va.

** Louisville, Ky.

†† Memphis, Tenn. Yellow color is not prohibited.

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[22] In 1942 with higher per capita income, butter consumption increased in spite of fairly high prices.

Table 103. Family Income and Consumption of Butter and Butter Substitutes Burlington, Vermont, 1935–1936 *

Weekly Income (Dollars)	Percentage of Families Using		Consumption per Family per Week Using	
	Butter	Butter substitutes	Butter	Butter substitutes
On relief	75	31	2.19	2.12
0 to 10	70	34	2.06	2.40
10 to 20	85	21	2.52	2.75
20 to 30	96	10	2.79	2.75
30 to 50	98	6	2.93	2.32
Over 50	98	4	3.59	2.00
Not reported	93	10	2.45	2.50
All	91	14	2.66	2.57
Those using only	85	8		

* Vt. Agr. Exp. Sta. Bul. 433. See also *Farm Economics*, N. Y. Coll. Agr., November, 1936, p. 2518; and Minn. Agr. Exp. Sta. Bul. 344, 1939. The consumption of butter substitutes reported for Minneapolis is much less than that reported for Burlington.

In the study made in Vermont only 8 per cent of the families used butter substitutes only. The importance of butter in the diets of those families using some butter substitutes increased steadily with increase in income. See Table 104.

Any comparison of the consumption of butter and other table fats among the states overlooks, of course, the effect of federal taxes. As shown by the licenses, the tax on colored margarine is almost sufficient to eliminate its sale even in states where colored margarine is permitted.

In the absence of adequate data, considerable speculation has occurred concerning the effect of regulations, including taxes, on the consumption of butter and margarine. Taylor in writing of a tax which increases price says: [23]

> Studies of consumption suggest that to some extent . . . very poor people deprived of margarine will turn not to the relatively expensive butter but to peanut butter, lard, and other cheap substitutes, most of which are not rich in this [A] vitamin.

The situation in some cases may be as follows:

> If margarine is inexpensive, the consumer buys margarine and a little butter, if margarine is expensive, though cheaper than butter,

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[23] *Barriers to Internal Trade in Farm Products, op. cit.*, p. 26.

Table 104. Pounds of Butter Substitute Purchased for Every Pound of Butter Purchased, Those Families Reporting the Use of Butter Substitute *

Income per Week (Dollars)	Pounds of Butter Substitute Purchased for Every Pound of Butter
On relief	4.50
0 to 10	5.65
10 to 20	3.40
20 to 30	1.51
30 to 50	1.21
Over 50	0.56
Not reported	2.44
Total	2.53

* H. B. Ellenberger and J. T. Stearns, *The Consumption of Dairy Products in Burlington, Vermont, 1935–36*, Vt. Agr. Exp. Sta. Bul. 433, 1938, pp. 33 and 34.

quantitative needs outweigh considerations of taste and quality and the consumer buys only margarine.[24]

What is the effect on consumption of keeping off the market the more acceptable type of margarine? Consumers in few communities do not appear to be willing to pay existing federal taxes and licenses on colored margarine. The extent to which margarine would be substituted for butter in the absence of taxes and restrictions as to type of margarine sold is indicated by a report of the U. S. Bureau of Agricultural Economics which compares, for the period 1930–1937, the fat consumption in the United States and the United Kingdom. The most conspicuous fact is the relatively high per capita consumption of bread spread in the United Kingdom. In 1937 it was 34 pounds per capita in contrast with 20 pounds per capita in the United States. Over the period reported the per capita consumption of margarine in the United States was between one-quarter to one-third of that of the United Kingdom. At the same time, consumption of butter in the United States was approximately one-quarter less than that of the United Kingdom.

In the United Kingdom where margarine is sold colored, flavored, and enriched, margarine accounted for about 28 per cent of the bread spread used. In the United States, margarine accounted for 12 per cent of the bread spread used.

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[24] Et. Burnett and W. R. Aykroyd, "Nutrition and Public Health," *Quart. Bul. Health Org. League Nations*, Vol. IV, June, 1935, p. 380.

Fat consumption reported for the two countries is different in a great many respects. The consumption of lard and various lard substitutes is much higher in the United States than in the United Kingdom.

In attempting to gauge from these data the pattern of fat consumption in the United States likely to occur if taxes and restrictions prohibiting the sale of colored margarine were removed, many factors affecting consumption in the two countries should be considered. The tea-drinking habits in England call for accompanying bread, muffins, tea biscuits, etc., all with a fat spread. The relatively high consumption of table fats may thus in part be accounted for. In discussing the high consumption of lard in the United States, the U. S. Bureau of Agricultural Economics points out that the difference in wholesale prices of butter and lard in England for the period 1930–1937 averaged 8.4 cents. In the United States it was 16.4 cents. The large difference makes lard seem relatively cheap here and encourages the use of lard both as a substitute for butter in baking and as a fat for other purposes.

From the data in Table 105 it is apparent that consumers in the United Kingdom are far from looking upon the lower-cost margarine as a complete substitute for butter.

The current arguments advanced by the dairy industry fails to point out that consumers favor butter even when their alternative is colored and flavored margarine. It is true an important change has recently occurred. Through the addition of Vitamin A, margarine has been made more nearly a nutritional substitute for butter. What affect will this have on consumer acceptability? Speculation should take into account that consumers in general have known little of vitamins until the past few years—either of their presence in butter or of their absence in margarine. The factors that formerly caused them to favor butter in place of margarine in the face of a somewhat higher price are still present even though the margarine is enriched.

The Controversy over Issues at Stake

In issues of this sort—that is, taxation and regulations imposed on the sale of margarine—there are usually three groups involved: in addition to consumers there are the two industries which feel that their incomes are affected by the regulations.

State regulation of margarine is based in the first place on the police power of the state—its right to prevent fraud and to promote health and welfare. The rule that no colored margarine can be sold has been accepted on this basis. States have been denied by the courts the right to prohibit the sale of margarine, although very heavy excise taxes have been accepted under the power of the state to tax. This power can be exercised even if the result is the exclusion of the product. Under such a condition it is

*Table 105. Per Capita Consumption of the Principal Fats in the United States and in the United Kingdom, 1930–1937 * (Consumption in Pounds)*

Year	Butter	Margarine	Lard	Compounds and Vegetable Shortening †	Total
Consumption in the United States					
1930	17.3	2.6	12.7	9.8	42.4
1931	18.1	1.9	13.5	9.4	42.9
1932	18.3	1.6	14.3	7.5	41.7
1933	17.9	1.9	13.9	7.6	41.3
1934	18.3	2.1	12.9	9.5	42.8
1935	17.3	3.0	9.5	12.1	41.9
1936	16.6	3.0	11.2	12.4	43.2
1937	16.7	3.1	10.5	12.3	42.6
Consumption in the United Kingdom					
1930	18.7	11.8	6.8	2.2	39.5
1931	20.9	10.3	6.9	‡	‡
1932	21.6	9.2	6.7	‡	‡
1933	23.5	8.4	7.7	2.6	42.2
1934	25.2	7.9	6.3	2.7	42.1
1935	25.2	8.4	4.6	4.2	42.4
1936	25.0	8.6	4.6	‡	‡
1937	24.8	8.9	‡	‡	‡

* *Hoard's Dairyman*, Nov. 25, 1938, p. 577. Data compiled by the U. S. Bur. Agr. Econ.

† For the United Kingdom this heading reads "lard compounds."

‡ Data not available.

obviously not being used for revenue purposes. The effect is the same as a prohibitive tariff—a type of legislation which is unconstitutional. In some cases the Supreme Court apparently refuses to look beyond the wording of the legislation to the effect that it brings.

The early acceptance of margarine taxes by the general public was based in part on the belief that consumers often were being cheated—being sold margarine when they thought that they were buying butter. A special report to the Secretary of Agriculture states:

> Although elimination of fraud was undoubtedly an important basis for much of the early margarine legislation, this is obviously not the object of the recent movement for high margarine sales taxes and

license fees. The practice of passing off margarine as butter has practically disappeared in recent years.[25]

Where fraud and misrepresentation in the sale of any product occurs, they should be attacked and not the product.

Propaganda to gain public support of the margarine tax has stressed the fact that butter is a superior food and hence should be protected from the competition of an inferior food. Some acceptance of the tax on this basis may have occurred among those consumers who could afford butter in reasonable quantities. The idea of taxing an inferior food to protect a superior food overlooks two very important facts. A superior food needs no protection in order to sell at a higher price. Consumers' preference because of its superiority ensures their acceptance even if price is higher. Most people probably eat margarine because they feel that they cannot afford good butter. The tax obviously does not increase the ability of the poor families to increase their consumption of acceptable butter—in fact it may actually decrease their ability to do so.

The argument is also raised that butter costs more to produce than margarine; hence it should be protected by placing a tax on the low-cost product. If a low-cost product meets a consumer need there seems to be no valid reason for interfering in any way with its production and sale in accordance with cost. At the same time, of course, high-cost products should be permitted free production and sale if consumers consider them sufficiently superior to pay the high cost in the form of higher prices. A $1,000 Buick may be a better car and probably offers, in the opinion of some consumers, a more enjoyable ride than does an $800 Ford. We do not, however, favor taxes on Ford cars to check their sale in order to ensure that some people who might buy the $800 Fords are restrained from doing so and as a result buy the higher-priced Buicks. All-wool blankets are more costly than part wool, yet we do not tax the part-wool blankets in order to check their competition with the more expensive and superior all-wool blankets. Information on labels is required. In a society such as ours with families having widely differing incomes, there is a very important place in consumption for low-cost products even though they are somewhat inferior in certain qualities.

Both industries concerned have injected many arguments to influence public opinion and to influence the opposing industry. The dairy industry has claimed that margarine processors have monopoly power, as a result of which prices to consumers are kept unduly high and prices paid to farmers for raw materials are kept unduly low. Existing taxes and regulations do nothing to cope with monopoly. Furthermore, it is probably best dealt with under antitrust regulation. The margarine industry contends, probably in an effort to retaliate, that the desire to check the consumption of margarine emanates largely from the butter trust. In any case it seems scarcely fitting in view of the monopoly power exercised in the fluid-milk industry—and even the cheese industry—for the dairy industry to contend that a food should be barred from the market because of the existence of some monopoly control among the processors through whose hands it passes.

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[25] *Barriers to Internal Trade, op. cit.*, p. 19.

The dairy industry claims that the tax imposed on margarine is justified since butter produced in the state has taxes imposed on it. Our system of regional specialization and of the many firms sharing in the production of any one food is much too complex to arrange equitable taxation on such a basis.

Extravagant statements on both sides have occurred. For example, *The Dairy Record,* June 18, 1941, writes:[26]

> The dairy industry must set as its goal the complete extermination of oleomargarine. It must never rest until the manufacture and sale of oleomargarine has been outlawed in the country.

The *Cotton and Cotton Oil Press,* October 25, 1941, retaliates by advising:

> Examine carefully every article offered you for sale and determine before you buy whether it was manufactured in Wisconsin. Then, if you find it was manufactured in that state, decide for yourself whether you wish to furnish ammunition for a gun which is leveled at your head.

In an attempt to break down the regional aspect of the controversy the butter interest of the North, with some cooperation from small groups of Southern farmers, has attempted to prove to the Southern farmers in general that income from the sale of that cottonseed oil used in margarine is relatively unimportant, that the income from dairy products is much more important, that the latter will become increasingly important as the dairy industry develops in the South, and that as a consequence they should support any measure which restricts the sale of margarine.

Such urging overlooks many things. Within each region some farmers may find it advantageous to expand their dairy herds and others to expand their production of soy beans and cotton. The question arises whether regulations within any one region should impose handicaps on industrial minorities in order to benefit industrial majorities. Furthermore, handicaps on margarine consumption may promote the dairy industry in the South to a point where its competition with the dairy products of the

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[26] This journal is published in Wisconsin.

Northern states may be more intense than the competition from fats that might otherwise have been produced and used in margarine. It seems highly desirable that the dairy industry should expand in the South. It does not, however, appear desirable to impose taxes on margarine as a means of fostering such an expansion.

The butter interests have attempted to marshal opposition to any modification of existing legislation through magnifying the extent of the decline in the consumption of butter which would occur if the tax on colored margarine were removed. Certain margarine organizations, on the other hand, have attempted to minimize the actual and potential competition between butter and margarine. For example, in the pamphlet *Why This Barrier?* issued by the National Cotton Council of America, it is contended that margarine and butter compete with each other little if at all. This follows directly after a plea for the removal of taxes, licenses, fees, and other restrictions. Nothing is said about the fact that the removal of these might increase the competition between butter and margarine. A great deal of emphasis is placed on the low consumption of table fats in the United States in contrast with that of certain European countries. The claim is made that both butter and margarine should be consumed in larger quantities. The removal of the tax on and the regulations prohibiting the sale of colored margarine would probably increase the consumption of table fats somewhat. There is little reason to suppose, however, that the consumption would within a few years reach the level prevailing in the United Kingdom in the pre-war period.

A Policy Geared to the Consumer Interest

Since the regulation of the conditions of sale of margarine very frequently and the taxation of margarine occasionally are being urged on the grounds of consumers' protection, it is of interest to ask what type of legislation and other action pertaining to the sale of butter and margarine would protect the interests of consumers. Minimum standards for both products designed to protect health by assuring adequate sanitary precautions and the absence of harmful materials are essential. There is no reason to suppose that greater precautions need to be taken with margarine than with butter even though the conditions to be considered are somewhat different for the two products. The addition of nutrients to either product, under the advisement of doctors and nutritionists, in the interest of more adequate diets should be both permitted and encouraged. The addition of flavor and color that are not harmful and increase the aesthetic enjoyment of both of these foods should also be permitted and encouraged. American consumers looking for a low-cost table fat and happening to enjoy yellow margarine may well feel rather imposed upon when they have to go to considerable trouble to mix in the yellow color. Labels should be required. They should bear important information that will assist consumers in evaluating the relative merits of the various foods offered for sale.

In addition, an educational program should be promoted to minimize any fallacies concerning the relative merits of margarine and butter. For example, consumers might need to be informed of the recent fortification of margarine with Vitamin A. More information is undoubtedly required concerning the Vitamin A content of butter, so that consumers will know the relative merits of butter and margarine. If investigations reveal that butter has certain fatty acids of special nutritional merit in contrast with such plant and animal fats used in margarine, this fact should be made known to consumers. Superiority of this sort in one product is not, however, grounds for barring the less expensive food from the market or taking steps to increase its price. Of course it may be found that fatty acids in certain vegetable oils used in margarine also have important nutritional qualities. Should this occur, education of consumers concerning such fact would be important. It is of interest at this point to note that some national diets contain little or no butter and large amounts of vegetable oil. Many such diets, however, do include large quantities of green vegetables—an important source of Vitamin A. If Vitamin A is added to margarine in sufficient quantities the nutritional hazard of substituting margarine for butter is largely eliminated. Because there was this hazard prior to the availability of Vitamin A in form suitable for adding to margarine, some countries required that all margarine contain some butter. In this way health was protected and low-cost fats were used in providing foods which were acceptable nutritionally and conformed to food habits.

License fees might well be a part of legislation conforming to the consumer interest. They should be imposed on both butter and margarine and should be high enough to pay for the necessary inspection of the product and for the policing of the labels. It seems highly probable, because for margarine the volume of product inspected at any one plant would be relatively large, that the cost of its plant inspection would be relatively low in contrast with that of butter. At any rate inspection costs of both margarine and butter would be relatively low when measured in cents per pound of product.

A brief statement of legislation that is unsatisfactory to consumers will suffice. Legislation to protect consumers would not forbid the sale of colored margarine or of margarine made more palatable with various flavors, nor would it impose taxes or charge high license fees merely to check the sale of any acceptable food.

The future course of taxes on and regulations pertaining to margarine is likely to be affected by the effort to check the growth of and to reduce the number and importance of interstate trade barriers. They may be imposed to protect a "home" industry by checking imports from other states, or they may be merely retaliatory. A state having a heavy tax on margarine, especially on the margarine made from cottonseed oil, needs not be surprised to hear of a cotton-producing state proposing a bill to tax heavily some commodity that is produced within its state. At a conference to consider interstate barriers to trade, held early in 1942, M. L. Wilson, of the U. S. Department of Agriculture, "urged the abolition of all federal taxes on colored and uncolored margarine." [27]

Steps to remove federal taxes have been taken. The Fulmer and Cooley bills, in 1942, called for repeal of the federal taxes. Organized opposition to the repeal appears to have been considerably stronger than organized support. A resolution was drawn up for presentation at the conference of the General Federation of Women's Clubs, held during April, 1942. The formulated resolution stressed the undesirability of taxes designed solely to discourage the sale of one wholesome food in order to further the sale of another.[28] From the excited tone of certain news items and editorials of dairy publications it might be inferred that many women delegates, from Northern states in particular, were given full instructions as to what should be done with the resolution when it was introduced. A vote of the delegates called for indefinite postponement.

It seems highly important that this issue be settled in terms of the interest of consumers. Otherwise, it will become merely a conflict to determine the relative political strength of the opposing industries. Fairness to consumers should be the standard by which to measure fairness to the industries involved. There seems to be no question other than that consumers would be benefited by the removal of both federal and state taxes. Such a change would probably necessitate some shifts in the output of particular products; and the consumers' interest calls for steps being taken to facilitate a shift of resources to other uses should such become economically desirable. At this point it may be important to realize that almost all economic advance which has brought the American people a high scale of living has involved similar shifts. It is thus that we come to use our resources more fully and to get larger returns for effort put forth.

Inspection, labeling laws, and elimination of misrepresentation in advertising need to be continued. In addition, it may be important to investigate possible monopoly power among large-scale processors. Improvements in these directions should be treated, however, as separate issues. They cannot be solved merely through the use of a tax that increases the price of a food to consumers.

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[27] *Dairy Record,* May 13, 1942, p. 6.

[28] See, for example, *Dairy Record,* Apr. 15, 1942, p. 14.

Sales Taxes on Food

Sales taxes are designed primarily to raise revenue. In contrast with excise taxes, they have only recently come to be used.

> In July, 1932 . . . general sales taxes were in effect in six states. In only two of them . . . were they significant sources of revenue. At the close of 1937 general sales taxes were in effect in no less than twenty-eight states and the District of Columbia, counting New York City a state by virtue of its size. . . .[29]

In New Orleans consumers pay 2 per cent to the state and an additional 2 per cent to the city.[30]

In some states all or some food is exempt from the general sales tax. In 1935, the California sales tax was amended, increasing the rate from 2½ to 3 per cent, and at the same time exempting foods. Ohio, for example, exempts from its sale tax of 3 per cent all purchases of food which are to be consumed at home. Colorado exempts milk, cream and bread, and North Carolina exempts salt, lard, milk, flour, cornmeal, meat, sugar, molasses, and coffee; whereas Washington exempts milk, butter, cheese, eggs, bread, margarine, and raw fruits and vegetables. The Louisiana law exempts all foods except some "luxury" foods.[31]

At the present time a federal sales tax is under consideration for the purpose of financing defense and checking inflationary tendencies from the increased spending power that is available with which to buy a greatly reduced stock of civilian goods. Sales taxes need to be contrasted with other taxes, especially the income tax. They need to be examined in terms of the burden they impose on the different income groups and of their possible effect on consumption and welfare.

The burden of taxes is very often measured by the percentage of the total income which they take. Poor families spend a larger percentage of their incomes than rich families. Conversely, they save relatively less. A sales tax, as a result, takes a larger part of the poor than of the rich man's income. Furthermore, expenditures for food take a relatively large part of the income of poor families; hence a sales tax that includes food among other things is especially burdensome to them.

A further argument in favor of exempting food is that a sales tax on food discriminates against large families at every income level. The proportion of the total spending going to food naturally rises with the size of family. Consequently, the exemption of food means that large families will tend to have somewhat smaller tax bills than small families at the same income level, which corresponds to generally accepted ideas of fairness.

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[29] N. H. Jacoby, *Retail Sales Taxation,* 1938, p. 71.

[30] See H. E. Riley, "State Sales Taxes and the Cost of Food," *Monthly Lab. Rev.,* January, 1937, p. 241.

[31] *Ibid.,* p. 245.

Income in contrast with sales taxes is related to ability to pay. Commonly used systems of exemption make income taxes progressive in contrast with the highly regressive character of sales taxes.

A sales tax that includes food which takes 12 per cent of the incomes of families with incomes below $1,000 would take about 5 per cent of the incomes of families with incomes of $10,000 or more. A sales tax with food exempted would more nearly take the same proportion of all incomes.[32]

> Considering the very heavy burdens imposed on low-income families by existing taxes, there can be no excuse . . . for adopting a basic defense tax which discriminates against low-income families to the extent of a . . . (a general sales tax). If we must have a sales tax, we should at least exempt food.[33]

Farmers are likely also to object to a sales tax on food because much of it, especially in the short run, is likely to be shifted back to them. The incidence on farmers of a tax on food depends on the type of food taxed and the number of foods to which the tax applies. If one food, such as pork, is taxed, a relatively large part of the tax is likely to be shifted to farmers, during the first year at least, while the supply already in the process of being made available is being sold. This occurs because the demand for pork is relatively elastic. The raising of the price by the amount of the tax, above what it would otherwise be, would cause consumers to shift their demand to other foods, especially other meat, on which no tax is being levied. The willingness of consumers to shift their demand and the absence of a tax on competing foods will make it necessary for farmers to accept a lower price than otherwise in order to sell the quantities of pork which they have produced. They may have to accept a price which is lower by nearly the full amount of the tax.

The situation is different in many respects if all food as well as other commodities is taxed. Consumer demand for any one food, especially one like pork, is relatively elastic, but demand for food in general is quite inelastic. A considerable rise in price causes the quantity purchased to fall relatively little. If a tax is imposed which adds a given proportion to the price of all food purchased, price differentials are not affected in the same way as if one food only is taxed. The higher cost of food in general will cause consumers to cut the amount of food purchased relatively little. To the extent that they cut it at all, the producers are likely to have to accept a somewhat lower price in order to sell the same quantity that could be sold at a higher price in the absence of the tax.

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[32] For further discussion of this comparison see A. G. Hart, E. D. Allen, *et al., Paying for Defense,* 1941, especially Chapter 14.

[33] *Ibid.,* p. 132.

Chain-Store Taxes

Chain-store taxes are like some excise taxes in that they are designed to check competition even to the extent of eliminating a competing type of business. Arguments in support of the tax seldom mention the importance to consumers of low-cost merchandising.

These taxes like many others increased greatly during the 1930's. In many states they are graduated to a point where they bear most heavily on the chains with many units, among which are many of the grocery chains. There have been attempts to legislate against self-service stores whether they be chains or independents: In several communities in New Jersey,

> Ordinances were passed levying a tax as high as $10,000 per year on any store operated on a self-service basis. The type of store covered by the ordinance was defined in considerable detail, specific mention being made even of the baskets used in accumulating merchandise prior to checking it out and paying for it. However, these ordinances have been declared unconstitutional.[34]

Such attempts indicate the length to which one group of retailers will go to check a certain type of competition and the failure of legislators proposing such measures to strive to promote efficiency and lower marketing cost.

The effect of taxes levied on chains is not easy to measure. It is clear, however, that the major purpose of their sponsors would be served if the costs and the prices of chain stores were raised. Chains undoubtedly have paid, to some extent at least, a part of the tax from profits. It also seems likely that the taxes have brought the closing of some of the units where volume was small and have checked the spread of chains into the smaller cities.

There is some evidence since 1938 of a slight slackening of antichain legislation. One writer states:[35]

> Already a reaction has set in in the thinking of the courts; the public is beginning to get less of a one-sided picture; the abuses of legislation obtained by the anti-chain forces have come under attack by the Department of Justice; and the Federal Government as a

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[34] G. J. Feldman, "Legislative Opposition to Chain Stores and Its Minimization," *Law and Contemporary Problems,* spring, 1941, p. 346.

[35] *Ibid.,* p. 347. For further discussion of chain-store taxes see M. G. Reid, *Consumers and the Market,* 1942, especially Chapter 16.

> whole has become aroused over the multiplication of interstate and other forms of marketing barriers. In the face of this, it seems inevitable that a reaction will ultimately take place in state legislatures and the result is the elimination of a great deal of the chain store legislation on the books.

Taxes on Food: Social Policy

Because of the relationship of better diets to greater welfare and because taxes on food tend to bear most heavily on low-income consumers, it seems highly desirable to remove all revenue taxes that tend to increase the prices of food, especially those foods consumed by persons with low incomes. When taxes are being used to protect one industry from the competition of another industry or one type of firm from the competition of another and when such taxes tend to raise food prices, the significance of such taxes to various groups of consumers should be taken into account in weighing the social desirability of the taxes. When this is done, it is felt that in many instances tariffs on food, margarine and the chain-store tax policy will be subjected to considerable revision. Too often the consumer interest appears to have been largely ignored when regulatory taxes have been imposed.

23

Food Advertising

Many questions pertaining to advertising are highly controversial, and much discussion has centered on the merits of food advertising. On the one hand are its enthusiasts. They often picture advertising as the essence of American enterprise, insisting that widespread advertising serves to stimulate initiative in developing better products whose special merits will provide a basis for effective advertising; that advertising constitutes a less expensive method than other forms of salesmanship; and that through it the economics of mass production are fully realized. They claim also that it is an important means of education; that advertisers in recent years have helped to make people vitamin conscious and to discover the potential enjoyment to be derived from foods; and that it teaches people how to buy, to use, and to care for products.

On the other hand are those who question sharply these alleged benefits. Several attitudes may be taken concerning educational merits. Some persons insist that information usually given in advertising is too limited for its educational merits to rate high, important facts often being withheld and unimportant ones being stressed, or that the play on the emotions, characteristic of much advertising, should not be dignified with the name of education, and that the exaggerations and misrepresentations that so frequently occur cancel out any benefits consumers might receive from any accurate information provided. There is a widespread feeling that the same effort expended in education by agencies having consumer confidence would bring immeasurably greater social returns. People criticizing advertising are also likely to condemn it as a nuisance, especially that food advertising which makes bedtime for children bedlam. Critics point to the higher prices consumers on many occasions pay for national brands in contrast with those receiving little or no advertising. This, they hold, is evidence that brand advertising, in place of helping people to buy wisely, is aimed at creating artificial distinctions, inducing people to pay a high price for factitious quality, established in the minds of consumers by frequently repeated claims.

Food advertising might be classified according to its sponsor. An industry may advertise a product such as meat, milk, walnuts, or some other basic food. A manufacturer may advertise a brand. In addition, a great deal of food advertising is done by retailers, in which case little or no mention may be made of brands and a great deal of attention is given to attracting customers to the store by means of price specials. Store announcements have an important role in making known the time of the seasonal peak of supply.

Industries and firms are faced with the question of whether to advertise their foods and of how an advertising program should be carried on. Consumers are faced with the question of how much advertising contributes to wise choice and selection of foods in the market. Issues of social control arise. How much waste occurs from ineffective advertising and duplication of effort? And how to reduce it? How to improve advertising so that it contributes more fully to consumers?

In examining food advertising it is important first of all to consider its effect on primary choice of food and its effect on selection of brand. Recent food-industry advertising will then be considered. Finally, efforts to improve advertising will be discussed.

Effect of Advertising on Demand for Foods

To a limited extent firms within some industries cooperate to advertise the foods which they produce. Brand advertising by firms is important for many foods—billboards, magazine pages, and radio announcers urge consumers to eat more of "this" brand. Does widespread advertising of a food, whether by industries or by firms, cause consumers to increase their consumption of it?

Many influences affect demand, so that it is difficult to determine clearly the effect of any one. So far, conclusive evidence is not available to show that advertising affects consumer preference—that is, for example, causes people to desire to substitute sugar for flour as a source of energy, or oranges for apples as a source of vitamins or minerals.

When advertising is studied in relation to food trends, several interesting facts are apparent. A marked decline has occurred in cereal and flour consumption in the face of extensive brand advertising. Sugar consumption has increased a great deal with little advertising. Borden, who early in 1942 published an extensive analysis of advertising, expresses the opinion that "Although sugar has been advertised, advertising has played no appreciable part in the remarkable growth in sugar consumption during the past century."[1]

Over the past few decades a major change in the American diet has been the marked increase in the consumption of fresh fruits and vegetables.

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[1] *The Economic Effects of Advertising*, p. 277.

They, apart from citrous fruits, have been very little advertised except by retailers' announcements. The increase in their consumption has been more marked than in that of canned fruits and vegetables, for which considerable brand advertising has occurred.

The advertising of citrous fruits by the California Fruit Growers' Exchange on the whole has stressed primary appeals such as characterize industry advertising. Yet the increase in the consumption of citrous fruits has not been so great as that of lettuce (which has not been advertised) or any greater than that of fresh tomatoes (also unadvertised). During the period of rapid expansion of lettuce there was no appreciable fall in its price; whereas the expansion in the consumption of citrous fruits was accompanied by a marked fall in their price.

The advertising program of the California Walnut Growers' Association has had much the same relationship to the total industry as that of the California Fruit Growers' Exchange. An advertising program of this industry has been carried on since 1918. The per capita consumption of walnuts was at its highest point in the crop year 1919–1920.[2] Consumption in the period 1929–1930 to 1934–1935 was considerably below that of the period 1918–1919 to 1928–1929—22 per cent for the country as a whole. In addition, the adjusted prices of walnuts during the later period were somewhat lower—about 4 per cent.[3]

Many experienced advertisers have expressed skepticism concerning the ability of advertisers to affect the consumption of products. Hopkins, speaking after a lifetime of experience in advertising, stated:[4]

> I have never known a line where individual advertisers could profitably change habits. New habits are created by general education. They are created largely by writers who occupy free space. . . .
>
> The advertiser comes in when . . . habits are changed.

Borden, after making an extended and systematic study of advertising, concludes:[5]

> The demand for products rests in the wants and desires of people as developed by the complex of social forces; and when the forces are favorable they may bring a great expansion of demand for a product without any effort on the part of producers to shape consumer attitudes.

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[2] See H. C. Hensley and N. H. Borden, *Marketing Policies of the California Walnut Growers' Association,* Farm Credit Administration, Cooperative Division, Bul. 10, 1937, p. 29.

[3] The prices of walnuts were adjusted to make allowance for the general change in price levels.

[4] C. C. Hopkins, *My Life in Advertising,* 1927, p. 148.

[5] *Op. cit.,* p. 364.

Brand Advertising of Foods

Widespread advertising of branded foods is carried on for the most part by manufacturers, and in a few cases by cooperative marketing associations. The product branded may or may not have quality superiority. Even without it, a reputation for superior quality may be built up through superior packaging and claims repeated frequently in advertising. The test of advertising success lies not only in relatively large sales but also in the ability to get consumers to pay somewhat higher prices per unit for the advertised brand than for unadvertised brands.

Consumers' attitude toward purchase by brand varies greatly with type of food. This fact is brought out by the data presented in Table 106. Fresh meat, poultry, rice, and sugar are among the foods for which brands were reported to be relatively unimportant. On the other hand, brands were especially important in the purchase of canned baked beans, flour, tea, canned salmon, tomato soup, gingerale, rolled oats, and cocoa. For these products a high proportion of consumers reported that brands were taken into account in buying, and a somewhat smaller proportion reported that they bought by brand "regardless" of price. Although canned fruits and vegetables, according to this report, are bought only to a limited extent without regard to brand, yet relatively few families report insistence on a specific brand in the face of material price differences. The difference in attitude to brand in fresh and cured meats is very striking.

A group of New York farm families were asked how many brands of specified foods they had used during the past year. The proportion reporting the use of one brand only, for selected foods, was as follows: [6]

Food	*Percentage Reporting That One Brand Only Was Used*
Butter	9
Cheese	11
Bacon	16
Tomatoes, canned	31
Corn, canned	36
Salmon	40
Peas, canned	40
Pineapple, canned	44
Bread, white	55
Rolled oats	80
Coffee	84
Flour	91
Mayonnaise	92
Soup, canned	98

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[6] Cornell (N. Y.) Agr. Exp. Sta. Bul. 561, p. 29.

Table 106. Extent of Consumer Brand Preference for Prepared Food *

Commodity	Number Reporting	Percentage Purchasing	
		Without regard for brand †	By brand regardless of price ‡
Black pepper	50	68	12
Fresh meat	54	67	18
Dressed poultry	48	67	15
Rice	50	60	4
Granulated sugar	55	55	7
Cornstarch	42	52	12
Vinegar	50	52	8
American cheese	53	49	23
Dried prunes	42	40	15
Salt	55	33	29
Dried raisins	41	32	24
Macaroni	50	32	18
Soda crackers	52	31	25
Cured ham	49	27	16
Corn Flakes	41	27	32
Canned cherries	43	26	9
White bread	56	25	32
Canned apricots	42	24	14
Canned pears	48	23	10
Canned tomatoes	48	23	12
Butter	53	23	30
Canned corn	53	21	9
Bacon	53	21	27
Cocoa	46	19	33
Canned pineapple	51	18	22
Gingerale	45	16	33
Canned asparagus	45	16	27
Canned salmon	50	16	36
Canned peaches	50	16	16
Rolled oats	41	15	29
Tea	54	15	39
Family flour	53	15	42
Canned peas	47	13	19
Canned baked beans	50	8	34
Tomato soup	51	6	27

* Temporary National Economic Committee, Mono. 1, 1940, p. 79. This committee circulated a questionnnaire among a small group of consumers in Washington and Boston. A list of 60 foods was included. Only those for which at least 40 replies were secured are included above. Questions bearing on consumers' purchase by brand included: (*a*) by brand if not higher in price, (*b*) by brand unless there was a very marked difference in price, and (*c*) by brand regardless of price.

† Buying without regard to brand is taken to mean that the consumer asks for a food without giving attention to brand or trade-mark.

‡ Consumers were expected to answer "yes" here only if "they insist upon a specific brand despite material price differences between it and competing brand and if they are not, generally speaking, willing to experiment with other brands."

These studies show some correspondence in attitude of the two groups of families to brands, especially if the proportion of farm families reporting the purchase of one brand only is compared with the percentage of families in the other study purchasing by brand "regardless of price": All the foods common to both lists, and for which at least 50 per cent of New York families report the purchase of only one brand, rank above the medium of items included in the list in Table 106. The low brand preference for canned fruits and vegetables is common for both groups. Farm families appear to have relatively low brand preference for foods which they often process for themselves; for example, butter and bacon and foods that are processed locally, as is cheese.[7]

To what extent can a seller through brand advertising cause consumers to buy his brand at a price sufficient to cover any additional costs arising because of the advertising? A great deal depends on the ability of the brand owner to make his product appear to be different in some way from the competing products that will be sold in the same market. With foods like canned soups and cured ham some opportunity of this type exists. Slight differences in processing can be introduced easily, and they become the basis of claims of superiority. Mere claims that quality is superior, when in fact the brand is identical in quality to many others, are likely to influence consumers relatively little if the products can be inspected at the time of selection. For fresh fruits and vegetables and fresh meats, brands have been definitely unimportant.

Some interesting data and conclusions are reported in Borden's recent study on the willingness of consumers to pay somewhat higher prices for widely advertised brands. Concerning sugar he writes:

> Brand advertising and promotion have enabled no brand to obtain a price differential. Traditionally, competition in the sugar industry has been centered upon price.[8]
>
> It appears that in the flour industry there is no lack of active price competition; yet reputation and possible quality differences permit a substantial price differential to persist.[9]
>
> The reputation established by the manufacturers (of canned milk) has permitted them to get a slightly higher price than the less-

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[7] H. Y. Bingham, "How They Buy Food," *Food Industries*, Vol. 7, October, 1935, p. 481, reports on the extent to which national brands were purchased by 100 housewives during one week. The strength of brand preference is in some measure indicated. National brands of cereals, soups, cheese, sugar, peanut butter, and prepared desserts were commonly purchased; while for canned fruits, salad dressing, and preserves, national brands were found to be less important.

[8] *Op. cit.*, p. 285.

[9] *Ibid.*, p. 586.

advertised distributors' brands; yet the differential in this case is relatively narrow.[10]

The association of extensive advertising of citrous fruits by the California Fruit Growers' Exchange and the rapid expansion in the consumption of citrous fruits has led some people to assume that advertising played an important part in the increased consumption and was especially profitable. This advertising was assigned to promote Sunkist brand, which constituted a large segment of the industry. Borden reports that the oranges of the California Fruit Growers' Exchange sold at a higher price than Florida oranges which were little advertised. He points out, however, that [11]

> This difference clearly cannot be attributed solely to reputation established by advertising, for the products have been different. California fruit has been more carefully graded and its market entry has been better regulated. But probably part of the difference is attributable to the reputation established through advertising.

He goes on to add: [12]

> It is to be expected that increases in advertising expenditures find natural competitive check from nonadvertised oranges sold through channels other than the cooperatives. So far as consumers are concerned, while they will pay some differential for a brand whose quality is maintained, the opportunities for individualization by producers through such quality control are limited.

Several facts stand out: (1) Such data as are available indicate that through brand advertising it is possible in some cases to persuade some consumers to pay more for widely advertised brands of food than for unbranded products or for private brands that are little advertised. (2) For foods in general it is possible, however, to push the price up by only a very small amount. This small amount may, of course, be of great importance to families who feel the need for economizing. To them the purchase of unadvertised products may be advantageous. Thus it is important that there should be available, in the market, products of satisfactory quality for which little or no brand advertising has occurred. (3) Inability to recognize quality and compare products is responsible in part for the power of advertising to induce consumers to pay a higher price for an identical or a very similar product. Increased information in advertising and on labels would serve to check advertising which does not constitute an efficient method of getting foods to consumers. (4) Freedom of distributors to introduce private brands in competition with nationally advertised brands of manufacturers plays a very important part in checking excessive costs of advertising. (5) Claims that brand advertising pays the entrepreneur in some cases appears to be exaggerated. For example, the high price paid for Sunkist oranges and Diamond walnuts was in part payment for better grading, a service important to many consumers.

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[10] *Ibid.,* p. 587.

[11] *Op. cit.,* p. 534.

[12] *Ibid.,* p. 535. Similar findings are reported for Diamond Brand walnuts advertised and sold by the California Walnut Growers' Association.

Advertising of Foods by Industries

Brand advertising of some foods has been important for a long time. With Sunkist oranges and Diamond brand walnuts, the brand has been applied to a large part of the total volume of the product. During recent years several food industries have launched advertising programs in an effort to expand the total consumption of their product. Funds for such advertising are provided by levies, in part authorized by state legislatures, on the industry in the main commercial areas.

State-sponsored advertising campaigns, listed in order of approximate 1938–1939 expenditures, are: Florida citrous ($850,000), California wines ($665,000), New York milk ($300,000), Washington apples ($207,000), California prunes ($125,000), Maine potatoes ($121,000), Idaho potatoes ($99,600), and Wisconsin dairy products ($75,000).[13] In 1940 the American Dairy Council was created by the dairy groups in several states for the express purpose of directing a nation-wide advertising program.

Advertising to increase consumption of a product is looked upon by many people as futile, a waste of expenditure from the point of view of the industry financing it and a waste of society's resources. They point to the fact that no evidence exists to indicate that advertising changes consumption, that flour consumption fell sharply during years of widespread advertising, and that the consumption of lettuce rose rapidly with no advertising.

Those promoting advertising of any food have been prone to conclude that, since a manufacturer may at times find that it pays to advertise his brand, he is justified in assuming that it will pay an industry to advertise its product. The two situations are, however, very different.

The development of advertising by industries, to a considerable extent, appears to have been based on a blind faith that advertising can be used to stimulate increased consumption without a decrease in price—and tests of its effectiveness are very difficult to secure. In brand advertising the manufacturer has a test as to whether his advertising pays him. The answer depends on whether he can raise the price of his brand above that of similar products, or whether he can cut other costs in moving his brand through the channels of distribution, in order to cover additional costs incurred because of the advertising. No such test exists for an industry. Research to discover the effect of advertising from the standpoint of the industry is likely to be very difficult.

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[13] G. R. Taylor *et al.*, *Barriers to Internal Trade in Farm Products*, U. S. Dept. Agr., 1939, p. 100.

It has already been pointed out that after many years of experience conclusive evidence does not exist that the advertising of Sunkist oranges and Diamond brand walnuts that related to a large part of an industry actually increased the producers' returns. Claims have been made that the advertising of California wines brought a marked increase in their consumption. Yet between 1935 and 1936, and again between 1937 and 1938 increases occurred before the advertising was started. There is considerable likelihood that many agriculturalists are getting an erroneous opinion of the effect of advertising programs which were started in 1940. Advertising is, for example, likely to be credited with much of the increase in demand occurring because of rise in consumer incomes.

A study made by Apodoca, of the U. S. Bureau of Agricultural Economics, dealt with walnuts, cranberries, raisins, and California oranges. It concluded that "The evidence has failed to show that there is a positive increase in the growers' income resulting from advertising when such advertising has been applied to non-processed farm commodities."[14]

Borden points out that "some executives have fallen into the error of placing unfounded faith in the ability of advertising to influence people and somehow to contribute to profits. To those who have opportunity to follow advertising closely and intimately, there is little doubt that a large volume of advertising even in recent years has been based on such unfounded faith, without adequate effort by management or advertising counsel, either to secure needed evidence by which to judge its sales and profit possibilities or to apply hard thinking regarding these possibilities from such facts as are readily at hand."[15]

Some people contend that advertising by an industry which concentrates on information about the nutritive value of a food, the characteristics of a high quality product, and the ways of using the various qualities can contribute to consumer education. It is true that food advertising might and that some of it does contribute information important to consumers. But most advertising has one or more defects as an educational medium, for example, exaggeration or overstatement of the merits of the product advertised and failure to point out the merits of substitute products. Because of the existence of these factors in advertising, consumers are skeptical of advertising; hence much of its educational value is lost.

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[14] H. E. Erdman, "Self-Financed, State-Sponsored Advertising as a Form of Farm Relief," *Proc. Nineteenth Ann. Conference Pacific Coast Econ. Ass.*, Dec. 27–28, 1940, p. 2; E. L. Weart, "Milk: A Food or a Medicine?" *New Republic*, Vol. 93, Feb. 2, 1938, pp. 359–61. This article comments on the advertising campaign carried on by New York State, which advocated milk as an alkalizer, and disputes the claims made that the campaign had led to increased sales.

[15] N. H. Borden, *Economic Effects of Advertising*, p. 143.

Advertising focuses on selling a certain product; its effect on nutritional health is of secondary importance. Some advertisers are able to point with pride to their advertisements and their product, and feel that they are working hand in glove with nutritionists. On the other hand, foods, the consumption of which nutritionists feel might well be reduced, are being widely advertised. Mitchell and Cook point out "many false notions and misapprehensions regarding the magic health value of certain foods and the mysterious dangers in specific food combinations have been introduced or initiated by unscrupulous advertisers and propagandists." They also state:[16]

> Many of the larger food companies today are putting out valuable educational material which is welcomed by teachers of foods and nutrition. . . .
>
> Some so-called educational food advertising presents pseudoscientific information on the nutritional or physiologic values of foods in an artfully misleading and insidiously deceptive manner. Exaggeration or implication that all nutritive values reside in a single food or any undue emphasis on the nutritional or physiologic values of any one food is a form of deception.

Since some food advertising by industries has attempted to push the products of one state, such advertising has been criticized because it creates barriers to trade between states. Funds collected are used sometimes almost exclusively to boost consumer preference for home-grown products. Other times they have been used to expand demand in distant markets. The merits of Maine potatoes may be lauded to divert demand for Idaho potatoes. A special report, prepared by the U. S. Bureau of Agricultural Economics, states:[17]

> All State Advertising, with the exception of that carried on by New York, has featured the name of the State in which the product was grown. . . . If the product, like apples or potatoes, is one that is grown in many different sections of the country, and if it is desired exclusively or largely to benefit producers in some particular State by the advertising of the product, it becomes necessary to differentiate in the minds of consumers between the product grown in that State and the same product grown in other States.

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[16] H. S. Mitchell and G. M. Cook, *Facts, Fads and Frauds in Nutrition*, Mass. Agr. Exp. Sta. Bul. 342, 1937.

[17] *Barriers to Internal Trade in Farm Products*, p. 101.

Vague claims rather than information concerning differences characterize much state advertising; in appeals and informational content it has much in common with brand advertising. Advertising that is promoting a state product has increased in this way the factitious qualities which consumers encounter in the market. A nation that prizes the advantages to be gained from regional specialization within its boundaries has no place for advertising that creates artificial differences among products from different states.

Many of these advertising programs have been accompanied by market studies, leading to improvement in variety, grading, and marketing methods in general. They appear to hold important possibilities of increasing consumption and benefiting consumers.

One other type of food advertising needs to be considered, namely, that carried on through retail stores for the purpose of moving large supplies at the peak season or an unusually large annual supply of any food. Hoffman, of the U. S. Bureau of Agricultural Economics, writes:[18]

> Organized efforts of this kind . . . were begun by the grocery chains in 1936. Since then other trade and retail groups have undertaken similar programs. At least 20 major agricultural products have had the sales support of such drives within the last 3 years.

After an examination of sales data Hoffman concludes:[19]

> Evidence based on the experience of the three chain systems included in this study indicates that sales of food products have been and can be sharply stepped-up when special efforts are made in the retail stores. . . .
>
> In general, the chain systems accompanied their sales-promotion efforts with some reduction in prices to consumers. There are those who argue to the contrary, but in the opinion of the writer the resultant narrowing of margins was one of the best features of their efforts. . . .
>
> The gains to be made for agriculture as a whole merely by diverting consumer purchases from one food product to another are questionable. But there can be little doubt of the value of any program that helps to relieve groups of producers who are in an especially unfavorable price circumstance, especially if the program results in a narrowing of marketing spreads.

He believes, furthermore, that "much of the novelty and appeal of these campaigns to consumers will be lost by too frequent repetition."

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[18] A. C. Hoffman, *Retail Sales Campaigns for Farm Products,* U. S. Bur. Agr. Econ. (mimeo.), 1938, p. 1.

[19] *Ibid.,* pp. 13–4.

Independent news service for consumers, concerning prices and quality of foods currently available, are also important.

Improvement of Advertising

The improvement of advertising might be considered from the standpoint of the seller who is interested in increasing his net income and from the standpoint of consumers interested in being informed about products available and in getting them without unnecessary costs.

During recent years a great increase has occurred in market research in which advertising and other merchandising practices have been studied. This has undoubtedly in many instances increased the net profit of many firms.[20] Possibilities of improvement in this direction are by no means exhausted.

The duplication of effort so apparent in food advertising has its counterpart in many other aspects of business. At times it has been suggested that competitors get together and agree to reduce the volume of advertising, and also that non-informative advertising be heavily taxed. The feasibility and probable effect of such actions are as yet relatively unexplored.

An increase in the educational value of advertising would occur were all falsehoods eliminated and more important information provided. Some conditions promoting such improvement will be considered briefly.

Reducing Misrepresentation and Increasing Information in Advertising

When contrasted with the advertising of patent medicines, flagrant misrepresentation in food advertising is not conspicuous. Subtle misrepresentations, however, are common. Attempts are often made to create the impression that the quality of a given brand is best. Most brand advertising makes this claim. Much food advertising also attempts to create the impression that the nutrients of a specified food in some mysterious way make a unique contribution to health. Cost comparisons, when made, are often misleading.

[20] See, for example, L. O. Brown, *Market Research and Analysis*, 1937, especially Chapters 2 and 3; H. V. Gaskill and R. L. Holcomb, "The Effectiveness of Appeal in Radio Advertising: A Technique with Some Typical Results," *J. Applied Psy.*, Vol. 19, June, 1936, pp. 325–39; M. Fleiss, "The Panel as an Aid in Measuring the Effects of Advertising," *J. Applied Psy.*, Vol. 24, 1940, pp. 685–95; C. E. Osgood *et al.*, "The Separation of Appeal and Brand Name in Testing Spot Advertising," *J. Applied Psy.*, Vol. 23, 1939, pp. 60–75.

The Council on Foods of the American Medical Association and the Federal Trade Commission are two major agencies which for some time have worked for a reduction in misrepresentation and for an increase of information in the advertising of foods. The war has brought into existence the Office of Defense Health and Welfare Services, which seeks cooperation of advertisers in disseminating information concerning better diets.

Efforts of the American Medical Association

Systematic analysis of food advertising and labeling by the American Medical Association was begun by a Committee on Foods, first organized in 1929. In 1936 the Council on Foods was established.

> The purpose of the Council is to consider foods and food advertising in the light of established knowledge or of the best authoritative opinion concerning food and nutritive values. . . . Foods that appear to conform to the requirements . . . formulated are declared "accepted" by the Council.[21]
>
> Processed foods have been the chief concern because it is largely through advertising that the consumer is informed as to the composition and nutritive properties of such foods. The Council aims to render service by recognizing the products of firms which honestly desire to restrict their claims to those which the Council believes are well established. . . . Educational food advertising presenting scientific information . . . is considered by the Council. When such advertising is acceptable to the Council it may display the Council's Seal of Acceptance.[22]

Of advertising in particular the council states:[23]

> Appropriate explanations or pertinent information should accompany scientific statements whenever necessary to assure their correct interpretation. A primary duty of sponsors and writers of educational advertising should be to make certain that all statements not only are truthful, but will be thoroughly and properly understood. Educational advertising should properly evaluate foods with respect to those common on the market and to the requirements of an adequate diet. Exaggeration or implication that all nutritive values reside in a single food or any undue emphasis on the nutritional or physiologic values of any one food is a form of deception.

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[21] American Medical Association, *Accepted Foods and Their Nutritional Significance,* 1939, p. 1.

[22] *Ibid.,* p. 2.

[23] *Ibid.,* p. 14.

Vague and inaccurate claims in food advertising were denounced by the council; for example, that efficiency is demonstrated by clinical experience; that the findings secured through questionnaires to professional groups is evidence of merit; that a given food provides energy, builds blood, develops resistance to disease, induces sleep, or it provides important vitamins or minerals.

In its work, the council evolved rules governing its acceptance of foods. Under the following conditions a food was not acceptable: [24]

> 1. [If the manufacturer or distributor is unwilling to disclose facts regarding its preparation.] The Council is of the opinion that the public deserves to know the ingredients of the food it purchases. There are no sound arguments justifying secrecy about the composition of foods.
>
> 2. If it does not comply with requirements of composition, standards and labels formulated by the United States Food and Drug Administration.
>
> 3. If its identification label is not properly informative or if the trade name is misleading or deceptive by implication. An acceptable food label has the common name of the food or a descriptive statement of the identity of its ingredients arranged in the order of their decreasing proportions by weight in the food and in easily legible type. . . .
>
> 4. If the submitted advertising used in its promotion contains unwarranted nutritional and health claims, even though the composition, method of manufacture and labeling of the food product appear in other respects to conform to the requirements of the Council.

In 1931 the Association reported: [25]

> The Committee on Foods up to June had studied some 500 products, of which only 128 had been accepted. By September it had studied 541 products, of which 165 had been accepted. The primary reason for this rapid progress has been the willingness of manufacturers who have submitted products to the committee to change labels and to correct advertising claims in order to make them acceptable. . . .

In 1940 the title of the Council on Food was changed to Council of Foods and Nutrition. The policy was modified "so as to concentrate its efforts on the important function of expressing authoritative group opinion on foods and nutritional claims made for them." It was felt that the Federal Food, Drug, and Cosmetic Act, and the Wheeler-Lea Act, empowering the Federal Trade Commission to check all false advertising.

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[24] *Ibid.*, p. 4.

[25] Editorial, *J. Am. Med. Ass.*, Vol. 97, Oct. 3, 1931, p. 1005.

would make unnecessary much of the supervision of labels and advertising formerly carried on by the Council of Food.

> The Committee on the Scope of the Council was charged with the duty of developing a plan whereby the number of food products considered for acceptance might be considerably reduced. Attention should continue to be paid to individual products intended for infant feeding. Special foods for feeding the sick and foods which have been manipulated in such a way as to enhance their nutritional properties, by the addition of preparations of vitamins, minerals or other dietary essentials. It would be well to devote more attention to nutritional claims and interpretation of laboratory and clinical reports on the nutritive properties of food and diets.[26]

> The Council deplores the lack of sound information in much general advertising material which seems to be reaching the general public.[27]

A change in the use of the American Medical Association seal in advertising copy during recent years is shown in the data presented in Table 107. For example, one-quarter of the food advertisements in 1935 in the four issues of *Good Housekeeping* examined, bore the American Medical Association seal, whereas in 1941 it was found in less than 10 per cent of the food advertisements in two issues examined. At the same time a decline occurred in the frequency with which Good Housekeeping's seal of approval appeared. In the magazines examined, an increase in the proportion of food advertisements bearing the American Medical Association seal was found only in *Hygeia,* a health magazine with a very restricted circulation. Many of the advertisements by industries in 1941 were found to bear the American Medical Association seal. The restraining effect of the regulations of the Council on Foods may be clearly seen by comparing within a given issue of *Parents* magazine, for example, cereal advertisements with and without the American Medical Association seal.

Efforts of Federal Trade Commission

The Federal Trade Commission, since its inception, has been empowered to check unfair competition. Court interpretation of its powers restricted its efforts until 1938 to cases where injury to competitors could be shown. At that time the Wheeler-Lea Act gave it power, among other things, to prohibit false advertising of food. False advertisement was defined as "an advertisement, other than labeling, which is misleading in a

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[26] *J. Am. Med. Ass.,* July 20, 1940, pp. 218–9.
[27] *Ibid.,* p. 219.

Table 107. Number and Percentage of Food Advertisements Having Approval or Seal of Specified Certifying Agencies, in Selected Magazines in 1935 and 1941

	1935 *			1941 †		
	Total number	No. with seals	% with seals	Total number	No. with seals	% with seals
In *Good Housekeeping* and bearing seal of						
(a) A.M.A.	175	43	24.6	68	6	8.8
(b) G.H.	175	32	18.3	68	10	14.7
In *Hygeia* and bearing seal of						
(a) A.M.A.	71	39	54.0	29	20	69.0
(b) G.H.	71	1	‡	29	1	‡
In other magazines and bearing seal of						
(a) A.M.A.	217	55	25.4	88	14	15.9
(b) G.H.	217	19	8.8	88	6	6.8
All food advertisements § bearing the seal of						
(a) A.M.A.	463	137	29.6	185	40	21.6
(b) G.H.	463	52	11.2	185	17	9.2

* Magazines examined included March, June, September, and December issues of *Good Housekeeping, Hygeia, Parents*, and *Woman's Home Companion*, and the first issue of the *Saturday Evening Post* of each of the four months listed above. For extended discussion of report see M. G. Reid, *Consumer and the Market*, 1938, Chapter 19.

† The magazines examined included the first four magazines listed above for the months of March and June. Issues of the *Saturday Evening Post* examined included the first numbers of April and June.

‡ Too few cases.

§ It should be noted that no account is taken here of the enormous difference in the circulation of these magazines. *Hygeia*, the magazine with the highest proportion of the food advertisements bearing the A.M.A. seal, is reported in 1938 to have a circulation of 112,906 (N. W. Ayers & Sons, Directory of Newspapers and Periodicals, 1938); whereas for the same year, *Woman's Home Companion*, with only one advertisement in each issue bearing the A.M.A. seal, was reported to have a circulation of 2,961,826.

material respect." Consideration was to be given to "representations made or suggested by statement, word, design, device, sound or any combination thereof," and also to "the extent to which the advertisement fails to reveal facts material in the light of such representations or material with respect to the consequences which may result from the use of the commodity to which the advertisement relates under the conditions prescribed in said advertisement, or under such conditions as are customary or usual." In other words, the Federal Trade Commission was empowered not only to check false statements but also to require that information be given.

The Radio and Periodical Division is responsible for scrutinizing the advertising matter published in newspapers, magazines, and other publications as well as their broadcast over the radio. Each misrepresentation detected in the survey is carefully investigated. In the fiscal year 1938–1939 advertisements of food products constituted 8 per cent of the questioned advertising, whereas those of drugs constituted 42 per cent and cosmetics and toiletries 10 per cent.[28]

Early in 1938 the practices and claims of Fleischmann's yeast advertising were found to be objectionable. Many of its well-known themes and slogans were indicted. After the action taken by the Federal Trade Commission, Horlick's Malted Milk, Inc. has agreed not to advertise that its product helped to build resistance to colds and winter ailments. A complaint has been issued against Nucoa oleomargarine, charging that the advertising implies (1) that the product is made from whole milk, when in fact it is made from skimmed milk and does not contain butterfat extracted from whole milk or cream; (2) that it represents that oleomargarine and butter are equally nutritious. Curtiss Candy Company agreed, among other things, to cease advertising that the consumption of Baby Ruth candy will avoid fatigue and that it will sustain body activity and reinforce body resistance to avoid ill health.

A liberal interpretation of the powers granted to the Federal Trade Commission would lead one to conclude that it could eliminate subtle misrepresentation as well as outright falsehood. What kind of standards of truthful advertising are likely to evolve? Early in 1941 the Knox Gelatin Company signed a Federal Trade Commission stipulation, agreeing to stop claiming directly or by implication:

> That scientific laboratory tests have established as a matter of scientific fact that *Knox* Gelatin increases vim and vitality, increases endurance, builds resistance to fatigue, cuts down and lessens fatigue, increases stamina and "staying power," curbs tiredness, restores vigor or stores energy.
>
> That *Knox* Gelatin or *Knox* Sparkling Gelatin prevents fatigue; keeps one in top form for working hard and playing hard; enables a person to sleep better or awaken more refreshed; lessens the seriousness of athletic injuries or causes minor athletic injuries to respond quicker to treatment; increases muscular work capacity 50% to 100% or is of any substantial benefit in increasing muscular work capacity; doubles energy or increases energy output 37% to 240% or is of any substantial value in increasing energy output. . . .

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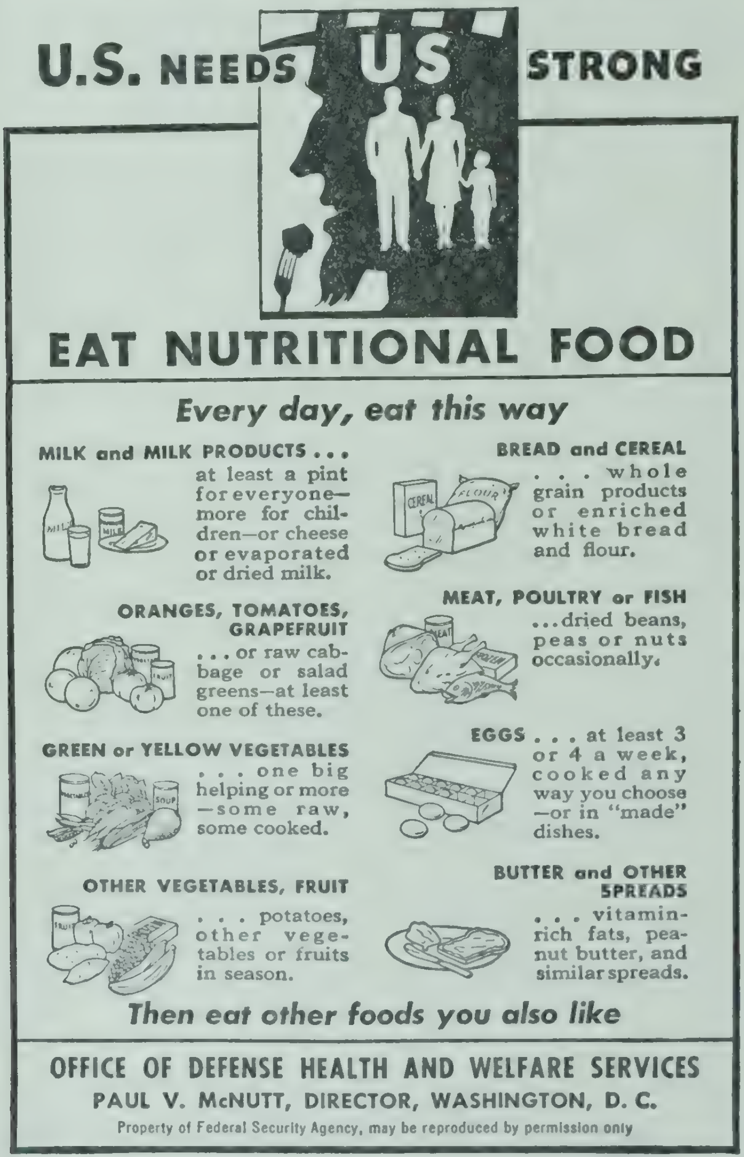
[28] *Annual Report of the Federal Trade Commission,* for the fiscal year ending June, 1939, p. 138.

However, later in 1941, Knox Gelatin Company advertised gelatine as a means of sustaining endurance. Two women are pictured, with one woman suggesting to the other who is worn out with housekeeping that she drink Knox gelatine. Even if the advertisement is phrased to meet the standards of truth employed by the Federal Trade Commission, an element of deception is involved. Many other foods would have the same effect.



U.S. NEEDS US STRONG

EAT NUTRITIONAL FOOD

Every day, eat this way

MILK and MILK PRODUCTS . . . at least a pint for everyone—more for children—or cheese or evaporated or dried milk.

ORANGES, TOMATOES, GRAPEFRUIT . . . or raw cabbage or salad greens—at least one of these.

GREEN or YELLOW VEGETABLES . . . one big helping or more—some raw, some cooked.

OTHER VEGETABLES, FRUIT . . . potatoes, other vegetables or fruits in season.

BREAD and CEREAL . . . whole grain products or enriched white bread and flour.

MEAT, POULTRY or FISH . . . dried beans, peas or nuts occasionally.

EGGS . . . at least 3 or 4 a week, cooked any way you choose—or in "made" dishes.

BUTTER and OTHER SPREADS . . . vitamin-rich fats, peanut butter, and similar spreads.

Then eat other foods you also like

OFFICE OF DEFENSE HEALTH AND WELFARE SERVICES
PAUL V. McNUTT, DIRECTOR, WASHINGTON, D. C.
Property of Federal Security Agency, may be reproduced by permission only

It is only natural that during the early years of the Wheeler-Lea Act attention should be focused on the most blatant violations. Personnel is limited. Moreover, public support is most likely to be given in such cases. As standards of social responsibility move to higher levels, the powers conferred by the act may be more fully used. Misrepresentations may be more commonly measured in the light on consumer knowledge and more attention may be given to requiring disclosure of important facts. Such possibilities lie in the future.

The Office of Defense Health and Welfare Services

The conjuncture of the war and evidence of widespread dietary inadequacy raised interest in nutritional education to a new high level. Naturally this was reflected in a tremendous increase in nutritional themes in advertising. With greater frequency people were urged to eat for health rather than for enjoyment. As the Office of Defense Health and Welfare Services expanded its nutrition program it received requests from commercial agencies to set up a policy that would help them to make the nutrition story known.

Early in 1942 the Nutrition Information Plan was announced. It included a nutrition theme: U. S. NEEDS US STRONG. Posters on this theme were prepared and nutrition developed. A sample poster is shown on p. 466.

Conditions governing the use of the official nutrition rules in space advertising or in printer material are as follows:

1. The Official Nutrition Food Rules must be reproduced in their entirety, exactly as illustrated.
2. The over-all size may be varied to suit individual requirements, but in so doing all units must be kept in the same relationship as to size and sequence as in the design.
3. The Food Rules may be reproduced in one or more colors. When more than one color is used, the foods illustrated may be shown in color provided it is not used to give undue emphasis to any one food, and the form of the illustration is not changed.
4. In food advertising:
   - *a.* The Official Nutrition Food Rules may be used in advertising when the food product being featured is one which is included in these Food Rules.
   - *b.* This advertisement or printed piece cannot include any other food which is not included in the Official Nutrition Food Rules.
5. In advertising other products:
   Advertisers of other products may reproduce the Official Nutrition Food Rules in their space advertising or printed material provided no other copy or illustration appears with them except the message:

"CONTRIBUTED IN THE INTEREST OF THE NATIONAL
NUTRITION PROGRAM"

Office of Defense Health and Welfare Services, Washington, D. C.

(Signature of Company contributing space or advertising piece)

The benefits from this cooperation will depend on how closely advertisers are required to abide by the rules.

24

Food Legislation To Ensure Sanitation

CONSUMERS seek protection of their health and their pocketbooks, and they want a food that comes up to certain standards of aesthetic acceptability. To protect health, harmful food must be barred from the market. No unwholesome or harmfully infected or contaminated food must be offered for sale. Protection of pocketbooks involves many things. Among them are the elimination of misrepresentation and the provision of accurate information concerning facts important to consumers in choice-making and market selection. If this is done, the probability of wise choice will be greatly increased. The checking of misrepresentation and the provision of information will be discussed in chapters which follow.

Ideas concerning desirable standards of sanitation in some cases go considerably beyond the protection of health. It seems highly important to separate systematically the health from the aesthetic considerations in deciding on minimum standards of both the quality of the product and the conditions of production and distribution. There should be no compromise on conditions necessary for a safe food supply. The conditions affecting health are the same for rich and poor alike. Ideas of aesthetic standards that are necessary to make a food acceptable vary within the population—they are psychological not physiological.

Some conditions are revolting. They violate widespread aesthetic standards and no question is likely to be raised concerning their undesirability. Thus butter is very likely to be aesthetically unacceptable to most consumers if it is known that it was made from cream in which rats and other rodents have inadvertently been drowned or which has been allowed to ferment or to become moldy, even though the butter made from the cream, after pasteurization, involves no health danger.

In some regulations it seems to be important to raise the question of how far the aesthetic standard should go. The U. S. Food and Drug Administration takes 2-pound samples of cheese in order to detect the presence of sediment, even though the presence of such sediment is not a health hazard and even though infinitesimal amounts such as might be discovered by this method could not be observed by consumers. The reaction of consumers to the idea of sediment in cheese is likely to be determined by the source of such sediment.

There is evidence that some rules pertaining to conditions in dairy barns and to such things as the number of hemmed towels available per cow are formulated because of aesthetic rather than health considerations. It seems probable that rules in some cases have been laid down because they were thought to have some bearing on health.

Any movement to higher and higher aesthetic standards makes it increasingly important to separate clearly health from aesthetic requirements. In formulating minimum standards for many products some attention to aesthetic requirements is undoubtedly necessary. It may, however, be more desirable to develop grades for products, taking aesthetic factors into account, and to describe the product in terms of these factors rather than progressively to raise aesthetic requirements that must be met in order to have a product admitted to the market. Aesthetics, incorporated into grades, should relate, it would seem, only to conditions affecting qualities observable in use; for example, flavor and color.

How Safe Is the Food Supply?

Knowledge of illnesses caused by food-borne diseases is relatively limited. The U. S. Public Health Service since 1923 has gathered information on milk-borne outbreaks of disease, and in 1938 and 1939 made special surveys of food in general. (See Table 108.) Either because of the short

Table 108. Disease Outbreaks and Resulting Cases of and Deaths Therefrom, in Which the Vehicles of Disease Were Water, Milk, and Other Foods; United States, 1938 and 1939 *

Vehicles	1938			1939		
	Outbreaks	Cases	Deaths	Outbreaks	Cases	Deaths
Water supplies	48	31,693 †	17	43	2,254	3
Milk and milk products	42	1,685	27	41	2,509	7
Other foods	70	2,247	25	148	3,782	12
Unidentified vehicles	8	882	3	17	1,203	6
Total	168	36,507	72	249	9,748	28

* A. W. Fuchs, "Disease Outbreaks from Water, Milk, and Other Foods in 1939," U. S. Pub. Health Reports, Vol. 56, Nov. 28, 1941, p. 2278.

† In 1938 a single water-borne outbreak of gastroenteritis, involving 29,250 cases, occurred in one large city. When this outbreak is omitted, data for 1938 and 1939 are quite similar.

period for which data are available or the unreliability of the data due to difference in completeness of the reports from year to year, no conclusions concerning trends are possible. The report of illnesses from some diseases is undoubtedly much more incomplete than that for others. For example, the data probably understate considerably the cases of dysentery and gastroenteritis. Many times no doctor is called; hence the illness is not reported. It is of interest to note that outbreaks of disease reported were more frequent from "other foods" than from either water or milk and milk products; the average number of cases per outbreak was, however, somewhat lower.

Outbreaks from "other foods" were largely food poisoning and gastroenteritis. In 1939, however, 7 out of the 12 deaths reported were caused by botulism. Most of the outbreaks in both 1938 and 1939 were traced to pies and pastries, with pork and pork products getting second place. Seventy per cent of these food-borne outbreaks were in cities of over 10,000 population. Fuchs concludes, "Apparently the large cities do not excel in food sanitation as they do with respect to sanitation of water and milk."[1]

Development of Minimum Food Standards

Supervision of markets to ensure that foods meet minimum standards is by no means new. In describing the quality of food in Medieval and Tudor England, Drummond and Wilbraham write:[2]

> Quite early in the history of our civic government we find reference to measures to protect the purchaser against the devices of those dishonest tradesmen who tried to sell him short-weight bread, watered beer, or tainted meat.

Of the early 19th century they write:[3]

> Food adulteration was practised on an almost incredible scale for more than half a century.

The 19th century saw in the United States the rise of increased interest in consumer protection. Attempts to secure federal legislation began as early as 1850. Evidence, presented by sponsors of the legislation, emphasized the dangers to health from tainted meat, chemical preservatives, unsanitary conditions, etc. Upton Sinclair's famous novel, *The Jungle,* with its nauseating description of unsanitary conditions in meat packing, did much to secure early enactment of meat-inspection legislation.

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[1] U. S. Pub. Health Reports, *op. cit.,* p. 2283.

[2] *The Englishman's Food,* 1939, p. 31.

[3] *Ibid.,* p. 341.

Filby divides the history of food adulteration into three periods. He writes:[4]

> The first, lasting from the earliest times to about 1820, was a time when there was but little, and very slow, development in either adulteration or its detection. There followed a period of nearly a century when both adulteration and its detection came very much to the fore. Perhaps we may, none too confidently, affirm that we are now in the third period when the grosser forms of adulteration have been completely abolished and the lesser ones held severely in check.

The increase in food legislation to protect health is a natural result of scientific development of bacteriology, chemistry, and physiology. These sciences revealed the dangers to health of certain practices and the methods of detecting dangerous products and unhealthy conditions. In addition, this legislation is the outcome of the increased complexity of economic system. Shrader writes:[5]

> The intricacy of the food processing operations, the multiplicity of human contacts involved, the large scale of the operations, with their attendant communal health hazards, have led society to endeavor to protect itself by instituting public-health supervision of food production and handling. The public themselves have not the time or the specialized knowledge to give satisfactory supervision.

Many kinds of food legislation bear on health and sanitation. Some of these will be briefly described, with a minimum of attention to technical aspects. Gaps in legislation will be considered and economic pressures discussed.

Pure-Food Laws

With the Food and Drug Act of 1906, food legislation took a great step forward. Its major purpose was to keep harmful foods off the market and to prevent the cruder forms of misrepresentation. The Federal Food, Drug, and Cosmetic Act of 1938[6] brought important advances in administrative procedures, for example, the simplification of the procedure for setting up standards of such things as poison tolerances. Now, once a standard is set, it is established in law. Its validity need not be established over and over again as had to be done prior to 1938. Natural as well as artificial poisons in food are brought under control.[7]

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[4] F. A. Filby, *A History of Food Adulteration and Analysis,* 1934, p. 17.

[5] J. H. Shrader, *Food Control, Its Public-Health Aspects,* 1939, p. 3.

[6] For a more extended discussion of these two acts see M. G. Reid, *Consumers and the Market,* 1942, Chapter 25.

[7] Selenium is an example of a poison which may occur at times in food and which may be classed as natural. It is used in certain insecticides and may con-

The present act also provides for the certification of coal-tar colors used in food, and for a compulsory emergency permit system. This latter is applicable to any class of food that may be contaminated from micro-organisms during manufacturing, processing, and packing—if the contamination might be injurious to the health and if it cannot adequately be determined after the food enters interstate commerce. Prior to the passage of the act in 1938, voluntary inspection of sea foods was provided by the Food and Drug Administration. During that period it was used chiefly by the shrimp industry. Factory inspection may now become compulsory for any industry while conditions in violation of the act are being eliminated. The possibilities of such inspection seem quite unexplored.

No health aspect of the pure-food laws has been subject to more controversy than the standards for poison tolerances of lead and arsenic. These are cumulative poisons, and residues of them occur on many foods. In determining the poison tolerance, it is necessary to take into account the extent to which the use of a substance cannot be avoided in production and the various ways in which consumers may contact the same or other poisonous substances: For example, lead and arsenic on any one food may not be important, but when either of them occur on many fruits and vegetables, a small quantity on any one food may be harmful. The coddling moth is a serious pest in the major apple-producing areas of the United States. The result is that apples from these regions are likely to have a good deal of lead and arsenic residue from the insecticide spray used. Apple growers of this area have been pressing for "high" poison tolerances. In 1940 the Federal Security Administrator, under whose authority the Food and Drug Administration standards are promulgated, announced the raising of the tolerances for lead and arsenic on apples and pears shipped in interstate commerce. The new tolerances, it was reported, were "based on the results of a three-year study made by the United States Public Health Service at the direction of Congress."[8]

Considerable protest came from Consumers Union, for example. It considered that the standard set "represents a triumph for the growers and a serious hazard to consumers."[9] They quote the authority of Carlson, an outstanding physiologist, who states:[10]

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taminate the soil replacing sulphur. It may be taken into the plant tissues. It is necessary to show that natural poisons are injurious in order to prohibit the sale of the products.

[8] Federal Security Agency (release), Aug. 12, 1940. See also *A Study of the Effect of Lead-Arsenate Exposure on Orchardists and Consumers of Sprayed Fruit.* U. S. Pub. Health Bul. 267, 1941.

[9] Consumers Union Reports, September, 1940, p. 18.

[10] *Ibid.*

> Have reviewed all work on lead and arsenic poisoning by the Public Health Service and in my judgment that work furnishes no scientific basis for permitting more lead and arsenic on apples and pears.

Shrader states:[11]

> The whole subject of the toxicity of sprays needs thorough study in the interest of public health.

The Federal Pure Food, Drug, and Cosmetic Act prohibits the sale of adulterated food in interstate commerce. Adulterated foods include those with poisonous and deleterious substances that may be injurious to health. They include also any food that consists "in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food." The instructions specify that the presence of filth constitutes an adulteration. The administrative decisions determine the interpretation of this term. How much dirt will be permitted? To require none whatever would put food on a standard far in excess of that necessary to protect health and much in excess of very high household standards of handling and processing food. It seems highly probable that in the future some specific considerations may have to be given to this clause so that zeal in enforcing the letter of the law does not impose a standard far in excess of what consumers think is worth the cost.

Federal pure-food laws affect only interstate commerce. Intrastate supervision may be very important for products grown or processed and used within the separate states. Inspection of restaurants as well as most of the supervision of milk is wholly a state function. Outbreaks of food poisoning from cream-filled bakery products have in some cities brought rules concerning their manufacture and the length of time and temperature they can be held in retail stores. Increased attention to social diseases has furthered an interest in examination of cooks, waitresses, and other food handlers in public eating places. Sanitary inspection of public eating places varies much from city to city, and is probably very infrequently found in small towns and villages.

Meat and Poultry Inspection

The Meat Inspection Act of 1906 is administered by the U. S. Bureau of Animal Industry and requires that all meat and meat products that are distributed in interstate commerce must be packed in licensed establishments. Inspected meat is marked with a purple seal. A few municipalities have similar inspection for intrastate meats. Shrader states:[12]

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[11] *Op. cit.*, p. 416.

[12] *Op. cit.*, p. 288.

> Most of them operate under a totally inadequate and casual round of occasional visits to abbatoirs and meat-handling establishments—a practice which keeps only a small percentage of unwholesome meats off the market.

Under the guise of protecting health, standards higher than are necessary may be imposed that reduce the supply and thus have a price-raising effect. The Meat Inspection Act operates in such a way that some wholesome lard, for example, must be sold as grease.[13]

The Agricultural Marketing Service of the U. S. Department of Agriculture provides poultry inspectors. The recent trend toward the evisceration of poultry at or near the point of shipment has greatly increased the volume of poultry which is officially inspected. Much of the poultry rejected as diseased may be finding its way into consumption within the state in which it is produced. Standards set for barring poultry from a given market may far exceed those necessary to protect health. A New York City ordinance in the spring of 1941 barred all eviscerated, third-grade poultry coming from out of state—third-grade poultry is wholesome food.

A Safe Milk Supply

Milk inspection is of several types. Points at which the inspection is made and what is inspected are both important. The points of inspection may include the farm, the transportation system that takes the milk to the processing or bottling plant, the plant itself, and the final distribution of the milk. The essential thing, of course, is the quality of the milk reaching consumers. Although there appears to be some tendency to concentrate more attention on the actual quality of the milk, rules pertaining to the quality of milk very frequently relate only to the conditions of production and distribution. It is assumed, at times mistakenly, that given conditions will ensure a desired quality of milk.

The provision of safe milk depends on the quality of milk coming from farms, care in handling it, and whether or not it is pasteurized. The first two factors are of the utmost importance if the milk is not pasteurized. Proper pasteurization, however, kills all disease-producing organisms.

The U. S. Public Health Service reports:[14]

> For the 16-year period 1923–1938 the Public Health Service compilation of milk-borne disease outbreaks indicates that about 95

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[13] For discussion see C. L. Alsberg, "Some Economic Consequences of Commodity Control," *Law and Contemporary Problems*, Vol. 1, December, 1933, pp. 44–9.

[14] A. W. Fuchs, *op. cit.*, p. 2282. See also P. B. Brooks, "A Study of Milk-Borne Epidemics," *J. Milk Tech.*, Vol. 2, July, 1939, pp. 168–74.

> percent of the outbreaks and of the cases involved were caused by raw milk and milk products. Since only about 30 percent of the milk used during this period was raw, the risk of contracting disease from raw milk was about 50 times as great as from milk labeled "pasteurized."

The likelihood that milk will be inspected varies with the size of the community. The U. S. Public Health Service reports that

> In 1936, 74.7 percent of the total milk supply of all municipalities of over 1,000 population in the United States was protected by pasteurization. For all municipalities between 1,000 and 10,000 population in the country the weighted average was 39.3 percent; for all cities over 10,000, it was 83.1 percent.[15]

In communities having 1,000 to 2,499 population only 24.5 per cent of the milk supply was pasteurized. In villages with population under 1,000 the proportion was undoubtedly much less.

Although each state or municipality is free to formulate its own standard governing the quality of milk to be sold, many have adopted the standard milk ordinance suggested by the U. S. Public Health Service. In 1936, Frank, of the U. S. Public Health Service, reported:[16]

> During the past twelve years approximately 600 American communities have adopted the uniform milk ordinance recommended by the U. S. Public Health Service.

Frank seems to imply, however, that strict enforcement occurs in only a limited number of these communities. He states:[17]

> The mean cost reported by the 74 cities which were strictly enforcing the ordinance as shown by ratings 90 percent or higher was 8.3 cents per capita per year.

The cost of enforcement varies somewhat with size of community. For example, in 1936 the per capita expenditure for local milk control, in municipalities having it, was 8 cents per year in population centers of 1,000 to 2,499, and 5.6 cents in those of 500,000 and more.[18] Although the proportionate difference per capita is considerable, 8 cents per capita per year hardly seems a high cost for the assurance of safe milk. The development of public-health laboratories on a county and regional basis should serve to improve the milk supply in small towns. In so far as costs are a factor checking adequate inspection and making the price of milk higher than necessary, low-cost methods should be sought.

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[15] U. S. Public Health Service, *Milk Supplies and Their Control in American Urban Municipalities of Over 1,000 Population in 1936,* Bul. 245, 1938, p. 25.

[16] Quoting from R. W. Bartlett, *The Price of Milk,* 1941, p. 100.

[17] *Ibid.,* p. 101.

[18] U. S. Pub. Health Service Bul. 245, p. 63.

A milk standard, like any other minimum, should provide a very high degree of health protection. Every sanitary code for milk sets forth certain conditions which may refer directly to the characteristics of the milk as well as to the condition of the cows, methods of producing and handling milk, and the frequency with which farms are inspected or tests of milk made. In order to avoid unnecessary expense, no conditions should be required which are not essential to securing milk of satisfactory quality. At times, in sanitary codes, conditions are required because it is assumed that they contribute to a safe product, when in fact they have little or no bearing on it. As techniques of examining milk improve and factors which influence its quality are better understood, sanitary codes may need to be revised in order that they do not impose unnecessary costs.

The cost of milk inspection in cities where effective control has been achieved differs greatly. Bartlett compares the inspection costs of New York City, which evolved its own inspection specifications, with those of St. Louis, which operates under the standard milk ordinance of the U. S. Public Health Service. In 1939 the inspection cost for New York City was 0.48 cent per 100 pounds of milk, whereas that for St. Louis was 5.00 cents. In spite of the relatively low cost, New York City has very high quality milk as measured in terms of freedom from milk-borne diseases.

In comparing these two cities, Bartlett finds that "the main difference lies in the frequency of farm inspections." [19] He raises the question of whether a more direct approach to the problem does not lie in an examination of the milk rather than its surroundings. "By this method, farm inspections can be limited to one or two a year." [20] The desirability of such a shift rests also on the fact that, after inspectors have done as good a job as they can of inspecting the barns, the safety of the milk is not thereby guaranteed. So-called "good" barns and standard procedures may not produce safe milk.

The cost of safe milk could be further reduced if only conditions having a bearing on the safety of milk were required on farms. Brew, former dairy bacteriologist of the New York Agricultural Experiment Station, reports that many conditions required in the standard milk ordinance of the U. S. Public Health Service, for example, may be considered as non-essential to the quality of milk.[21]

It seems highly important that progress be made in the revision of standards and systems of inspection, that an increased number of families be provided with safe milk, and that consumers are not saddled with unnecessary costs.

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[19] *Op. cit.*, p. 101.

[20] *Ibid.*, p. 103.

[21] *Ibid.*

In some communities more than one sanitary standard is set, the lower quality selling at a lower price than the higher quality. The desirability of such dual grades has been much discussed. Some people object to them on the grounds that the poorest grade permitted in any system must be safe. Some public health officials believe that dual standards make enforcement more costly.[22] Others feel, however, that through their use enforcement is simplified. They maintain that a sanitary standard which excludes a producer from the fluid milk market is going to be resented, whereas one that results in his receiving a lower price provides an incentive for improvement. On this basis dual sanitary rules, however, only would have a place in the early stages of improving the milk supply. Such a policy would be based on the assumption that quantity rather than quality of milk was more important to consumers, or that immediate protection of consumers' health from milk-borne infections was less urgent than minimizing the disturbances in the local industry while effecting improvements.

Where milk grades are used, it seems essential that the lowest standard ensures a safe milk supply; that the grade differences be based on differences in aesthetic consideration; and, furthermore, that consumers be informed by widespread and continuing education of the true difference in the grades.

Sanitary Inspection of Milk: A Restraint to Trade[23]

Sanitary rules governing milk supply get public acceptance largely because of their supposed bearing on health. Under cover of these rules, attempts have been made in many places to check competition.

> In the alleged interest of the consumer and defended by doctrines couched in such hackneyed phrases as police power, public health, and public welfare, a mushrooming of legislation has spread designed to effectuate governmental supervision and control through licensing over many types of trades, businesses and occupations.[24]

Competition may be checked in several ways: (*a*) Through bribes and other means it may be possible to have inspectors discriminate against a certain firm or firms. Established distributors have managed at times to have the plants of new firms that attempt to enter the market given a very low sanitary rating as a means of discouraging them through creating unfavorable local sentiment concerning their products. (*b*) Minimum standards or requirements may be set unnecessarily high. This may be a very effective method of checking supply, especially if the requirements impose very high costs, per unit of output, on the small-scale producers. Certain requirements on the farm have been of this type. (*c*) Local communities may require that all milk products consumed come from farms that have been approved by local inspectors and, in addition, a limit may be placed on the number of inspections that are made or the areas within which inspections will be made, or high charges may be imposed for inspections made outside a given area.

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[22] See J. H. Shrader, *op. cit.*, pp. 91–2.

[23] See, for example, G. R. Taylor *et al.*, *Barriers to Internal Trade in Farm Products*, Special report to the Secretary of Agriculture, 1939.

[24] I. W. Silverman *et al.*, "Control by Licensing Over Entry into the Market," *Law and Contemporary Problems*, spring, 1941, p. 234.

Of the efforts to push up sanitary standards, Taylor writes:[25]

> In any given case it would probably be impossible to tell in what degree this resulted from attempts to exclude outside milk or from a sincere desire to improve the quality of the product. But supposing the latter motive to be dominant, there is serious question from the social point of view as to how high these standards should be permitted to go.

Undoubtedly instances occur in many milksheds of restriction on inspection. The Federal Trade Commission reports, for example, that[26]

> There are . . . indications that Connecticut has used its milk-inspection laws advantageously in keeping out milk from other states, although it does not admit this use of its powers.

Another report states:[27]

> Inspection and registration is required of all farms shipping to Rhode Island markets and numerous regulations have been adopted which put the distant producer at a disadvantage.

Sanitary standards are most important for fluid milk. Compulsory inspection is, however, increasing for other dairy products. Already they are being used as restriction to trade. The city of Cleveland, for example, requires:[28]

> All evaporated condensed milk sold in this city must come from farms inspected by Cleveland officials. As a result, at least one company engaged in the sale of these commodities has had to shoulder the expense of sending Cleveland officials to inspect Wisconsin farms.

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[25] *Op. cit.*, p. 10.

[26] *Sale and Distribution of Milk Products, Connecticut and Philadelphia Milksheds*, 74th Congress, 1st Session, House Doc. 152, 1935, p. 90.

[27] G. R. Taylor *et al.*, *Barriers to Internal Trade in Farm Products*, Special report of U. S. Dept. Agr., 1939, p. 6. Many other examples are included in the report.

[28] *Ibid.*, p. 12.

Some regions go so far as to require that all butter used in the ice cream consumed must be produced on farms that are certified by local inspectors. This ruling may occur even though all cream used for butter, which might have been used, has been pasteurized.

No one questions the need for standards sufficiently high to protect health. It would seem, however, that agreement could be reached concerning standards necessary to achieve this, and then that inspection systems be unified. In the interest of efficiency, products should be free to move anywhere once a farm is certified by an accredited inspector.

The insistence of states and cities that their own officials alone are qualified to rate the sanitary conditions of farms supplying milk may be influenced by many conditions. Inspectors in some areas are poorly qualified for their work, the positions being used as political awards and not given on the basis of competence. Nevertheless, the rule in some cases constitutes a deliberate attempt to check imports. A remedy is to evolve a satisfactory standard ordinance that does not impose unnecessary costs of production and handling or of inspection; then to encourage all cities and states to adopt it and to provide an inspection system where appointments are made on the basis of competence. This inspection system would be controlled by federal and state governments. Products would be acceptable for both interstate and intrastate shipments. The *Consumers' Guide,* in discussing such a program, writes:[29]

> Standards of Federal-State inspection would be uniform, and a city health department would then admit milk from any farm which obtained approval of the Federal-State inspector, wherever the farm was located.

Restrictions on Public Eating Places

Health regulations have also been used in Colorado as the guise for restricting the number of public eating places. A statute in that state provides that food shall be served and sold for consumption only in premises licensed as restaurants. A restaurant is defined as[30]

> an establishment provided with special space and accommodations where . . . meals are habitually furnished to guests, or a place where food is prepared for human consumption . . . and whose principal business is the sale of meals, food, drink and tobaccos. . . .

This act was contested by drug, department, and ten-cent stores that were engaged in the business of dispensing soft drinks, ice cream, sandwiches, and short orders. The Federal District court of Colorado "held that more than sufficient evidence had been introduced to establish that restaurants as defined have a substantial relation to the public health." [31] Lunch counters in five- and ten-cent stores and other places, serving meals and short orders in conjunction with another type of business, had to erect partitions. Sanitation in public eating places is important. It would seem, however, that legislation prescribing given sanitary conditions would be more effective in minimizing health hazards than merely requiring the separation of food consumption from the sale of things other than food.

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[29] *Consumers' Guide,* March, 1941, p. 12.

[30] Colo. Stat. Ann., 1935, c. 81, 14.

Public Policy

A high standard of sanitation and other conditions necessary to protect health is likely to continue to be of the utmost importance. In some communities minimum health standards have not yet been achieved. A notable case is the fresh milk sold in many rural communities. The difficulties of achieving a satisfactory standard may be so great at times that increased attention should be directed to increasing the consumption of dried skimmed milk, canned evaporated milk, and those soy bean products providing certain nutrients also available in milk.

Effort in another direction is also essential. Producer groups in the name of sanitary standards are exacting a toll from consumers by restricting the supply of foods of satisfactory quality. Uniform sanitary regulations, based on an accurate appraisal of ways of protecting health and on impartial, competent inspection service, are needed to do away with internal barriers to trade and to reduce unnecessary costs.

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[31] I. W. Silverman *et al.,* "Control by Licensing Over Entry into the Market," *Law and Contemporary Problems,* April, 1941, p. 249.

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Legal Protection against Misrepresentation

Consumers want to be protected against products dangerous to health, and minimum aesthetic standards are desired. Among products acceptable to at least some, consumers want to be informed concerning relative qualities. They do not want to be sold one quality thinking that it is another. Protection against misrepresentation is thus important. Efforts to check false advertising and to get more information through this medium have already been considered. Here attention is to be concentrated on regulations pertaining to food labels and quantity measures and to the prohibition of the sale of products on the grounds that such action protects consumers. The last of these will be discussed first. Information voluntarily given on labels is to be considered in Chapter 26.

Nature of Consumer Misrepresentation

In examining legislation which presumes to protect consumers through prohibiting the sale of certain foods, it is important to note the nature of consumer selection and the process by which consumption habits change. And then to consider what should be done about the occurrence of mistaken selection.

Misrepresentation may occur because of what appears on the label—the separate words, their arrangement, the pictures and colors, used as well as other things—and also because of what fails to appear. Misrepresentation of these types may cause consumers to make mistakes in their selection. Mistaken selection may also occur because of ignorance of consumers as to the meaning of facts presented, of their carelessness in observation, or of their failure to read labels. No matter how close labels come to presenting facts in words meaningful to consumers in general, and no matter how widespread is consumer education which calls attention to facts appearing on labels and to their significance in terms of consumer use, some of the market selection of a considerable number of consumers will be made on the basis of mistaken notions. The importance of reducing or eliminating such mistakes will depend in some measure on the type of product involved and its relation to consumer welfare.

In a static-market situation mistaken selection by consumers would be relatively infrequent because there would be nothing new with which they would have to get acquainted. No gathering of new facts and no new evaluations would have to be made. In many cases no purpose would be served by reading informative labels, for the facts there would already be known. Our market, however, presents a very different picture. It provides an ever-changing scene. New products or somewhat modified forms of old products are constantly appearing. Many people rejoice in and point with pride to such change. To them it is an evidence of progress. It does, however, increase the probability of mistakes being made by consumers in their selection. New things are often closely similar to some already in use. In fact an appeal to consumers is often made on this basis, and consumers are influenced by the similarity. No product is identical to another,[1] although in some cases it may be a complete substitute for certain uses.

In the process of change mistakes by consumers appear to be inevitable. In spite of statements on labels many consumers still mistakenly buy vanillin for vanilla. They may look at the color of the liquid or may even read the name vanillin on the label without knowing that they are not buying vanilla. Some people may mistakenly think that strawberry jello has had a direct connection with strawberries. Rayon was introduced as a substitute for silk. Many consumers have accepted it as such, although it does not have all the characteristics of silk. A product accepted in ignorance as a substitute may, however, be found to be satisfactory and later deliberately chosen. It may also be found to be unsatisfactory. In this event a need may be felt for more complete information in order to avoid the repetition of a former mistake.

New products, especially those offered as substitutes—as substitutes they may be accepted as being of inferior or superior quality—increase the frequency of mistakes in consumer selection until through experience or through the advice of experts their relative merits can be appraised. But the occurrence of mistakes is certainly not in itself grounds for banning the sale of a new product. Such restriction would interfere with methods by which consumers discover better as well as low-cost satisfactory products. It must be recognized, however, that all "substitute" products cannot be put into the same category. Some have a much closer bearing on health than others. Filled milk, a product made from skimmed milk to which has been added coconut or cottonseed oil, provides a case in point.[2] An examination of legislation pertaining to it is of interest.

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[1] Many brands of any one product may of course be sold in a single market or even in a store.

[2] The addition of fat to skim milk makes it a more acceptable food.

Prohibiting the Sale of Certain Products: A Means of Eliminating "Misrepresentation"

There is a Federal Filled Milk Act prohibiting the sale of filled milk in interstate commerce. Legislation prohibiting its sale also exists in several states, although some of the state laws have been declared unconstitutional.[3]

The most famous U. S. Supreme Court case bearing on this legislation states:[4]

> The constitution of the United States does not secure to anyone the privilege of manufacturing and selling an article offered in such a manner as to induce purchasers to believe that they are buying something which is, in fact, different from what is offered to sale.

In this decision the court upheld the right of the State of Ohio to prohibit the sale of filled milk even when it was plainly and truthfully labeled as such. The decision embodies a very naive conception of consumer selection. Certainly the constitution does not and should not confer on sellers the right to design their selling methods in such a way as to deceive consumers. Nevertheless the nature of consumer carelessness and ignorance makes it impossible to have a dynamic market providing a wide variety from which to choose without at the same time having a condition in which a large number of consumers "believe that they are buying something which is, in fact, different from that which is offered for sale."

The federal law barring the sale of filled milk has been held to apply even in cases where the product is sold under a trade name which in no way implied that whole milk had been used. For example, the U. S. Circuit Court of Appeals at Chicago in 1937 upheld the constitutionality of the Federal Filled Milk Act, barring from interstate commerce Milnut and Carolene, products made from evaporated skim milk and coconut oil, on the grounds that these might be used, by mistake, in place of evaporated milk because they were identical in taste and color and were sold in containers identical in size to those of evaporated milk and sometimes were advertised by retailers as evaporated milk.[5]

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[3] For example, the supreme courts of Michigan, Illinois, and Nebraska have invalidated the filled-milk acts of their respective states. See, for example, People v. Carolene Products Co., 345 Ill. 166, 177 NE, 698, *North Eastern Reporter,* Vol. 77, 1931, pp. 698–700.

[4] Hebe Company *et al.* v. Shaw (1919), 248 U. S. 297.

[5] Carolene Products Co. v. Evaporated Milk Ass. *et al.,* No. 6283, U. S. Circuit Court of Appeals, Seventh Circuit, Dec. 2, 1937, *Field Reporter,* 2d series, Vol. 93, pp. 203–5. The decision in this case seemed to rest in large measure on the findings of the committee investigating filled milk at the time the federal act was

In contrast with this decision is that of the Missouri Supreme Court which upheld the right of a certain company to sell filled milk in Missouri. The product in this case contained both vitamins A and D. On the label in large type were the words: *Not To Be Sold for Evaporated Milk.* The court decision states: [6]

> We are unable to see how the buying public could be deceived into thinking that it is buying milk when purchasing the respondent's products. The decision referred to filled milk as "wholesome," "nutritious," "uninjurious," "unadulterated," and "beneficial."

The Supreme Court of the State of Kansas in upholding the validity of the filled-milk act of that state declared that the statute had a twofold purpose: (*a*) the preservation of public health and (*b*) the prevention of misrepresentation and fraud injurious to consumers.[7]

No one is likely to question the desirability of either of these objectives. It is, however, important that these objectives should not be used as a screen to protect the vested interests of certain groups and to prevent the sale of wholesome foods; [8] especially when these desirable social objectives might be achieved in other ways.

Without the addition of Vitamin A, filled milk would certainly be rated by scientists as inferior nutritionally to evaporated whole milk. If the protection of health is the objective, several matters should be investigated, however. It is highly important to go back of the products involved to the people who might use them. It is not sufficient to ask whether one food is more healthful than another. One must inquire how the nutritional health of individual people is affected. To prohibit the sale of the cheap food does not make the expensive food available. It may worsen not better many diets.

Other matters should also be considered. If health is to be protected, what are the various methods which might be used? And what conditions bring into use the largest quantities of those nutrients especially needed for nutritional health? The ruling against filled-milk products fails to recognize the importance of the milk proteins and minerals which might be consumed through the use of filled milk. If we accept the slogan

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passed, namely, 1923. It seemed to fail to take into account scientific discoveries which make possible the fortification of foods with synthetic vitamins or the changes in market practices and methods of their control.

[6] State ex. inf. McKittrick v. Carolene Products Co., *Supreme Court of the State of Missouri*, Vol. 346, 1941, pp. 1049–62.

[7] *Reports of the Supreme Court of Kansas*, Vol. 152, pp. 9–18.

[8] *Hoard's Dairyman*, Mar. 10, 1937, reports that beginning in 1935 the Evaporated Milk Association retained a lawyer to assist state and federal enforcement officials in filled-milk litigation. Such a situation does not contribute to an appraisal of the purpose and the effect of the filled-milk regulations from the point of view of society in general.

MILK IS THE FOUNDATION OF OUR DIET, then an effort should be made to move into consumption an increasing amount of the skimmed milk which contains high-grade proteins, calcium, and other minerals in which many diets are deficient. If the absence of Vitamin A in the fats used in filled milk constitutes a nutritional hazard for some consumers, this lack no longer can be grounds for barring its sale. Health may be protected by requiring the addition of Vitamins A and D in amounts equal to those in evaporated whole milk.

The addition of synthetic vitamins to filled milk may not make the exact nutritional equivalent of whole milk. It was pointed out in the discussion of margarine (see p. 443) that preliminary findings indicate that fatty acids in butter may have growth-promoting qualities superior to those in vegetable oils. In addition, there are some who claim that the lactose in milk is not effectively utilized unless it is consumed in combination with butterfat. Further investigation may substantiate these tentative findings. Even so, filled milk contains valuable nutrients in which many diets are deficient, especially those of low-income families. The extent of waste occurring in the use of skim milk has already been pointed out. The question does arise whether it would be better to get more skim milk into use through filled milk or whether attention should be concentrated exclusively on other means. Consumer acceptance of any food and the ease of incorporating it into established food habits are important factors to consider. Another would be the likelihood of the nutrients thus provided contributing most to nutritional health. Any defects of filled milk in contrast with evaporated whole milk, due to the fatty acids it contains or to its combination of lactose and fat, is not likely to be of great significance in most diets, containing as they do a large variety of foods. In such diets filled milk would contribute valuable minerals and proteins. The combination of fatty acids and lactose in the diets would in all probability be very satisfactory. The situation with infants may be very different since their diet is composed largely of milk. There would thus not be the same possibility of various foods supplementing each other to achieve a satisfactory combination of nutrients.

It seems probable that there is no case where a wholesome food should be barred from the market on the grounds of protecting consumers. If it seems probable that the process of substitution may result in an inferior diet, fortification of the substitute food with various protective elements may be required. In addition, informative labels should be required and extensive consumer education carried on both through the schools and other channels.

Federal Food, Drug, and Cosmetic Act of 1938

The Federal Food, Drug, and Cosmetic Act of 1938 brought several important changes from preceding legislation pertaining to misrepresentation in the sale of food.[9] Some of the regulations explored new fields; others extended and strengthened earlier rulings against adulteration and misrepresentation, and changed administrative procedures.

Some Advances in Labeling Requirements

The act prohibited all labeling, false or misleading in any particular. Certain types of information were required to be put on the label, in such form as to be easily read and understood. In determining whether labeling constitutes a misrepresentation, design as well as statements is to be taken into consideration. In addition, the act makes provision for requiring disclosure of those facts considered necessary to prevent misrepresentation.

Advances of the act of 1938, over preceding regulations, include:

(*a*) Major ingredients of food mixtures sold under brand name must now be declared on the label. If a product is an imitation of another food, it must be described as such.

(*b*) Provision is made for establishing standards of identity. These provide an opportunity to require information being given on the label.

(*c*) If a food bears or contains any artificial coloring or chemical preservative, its label must state that fact. Rulings as to artificial coloring do not apply to butter, cheese, or ice cream. (Florida oranges colored with coal-tar dye must be marked "color added." The use of ethylene gas in order to hasten the development of color in California oranges is permitted without the consumers' being enlightened concerning the use of the artificial process.)[10]

(*d*) Reasonable standards of quality and fill of container may be set up for all foods. In this way an extension to all foods has been made of the provisions of the McNary-Mapes Amendment of 1930, which required the use of a substandard label on canned fruits and vegetables which fall below a reasonable standard of quality of product and fill of container.

(*e*) If a food is represented as having certain dietary uses, it is misrepresented unless the label bears the information concerning its mineral, vitamin, and other dietary properties prescribed as necessary. In this way purchasers are to be informed as to its value for the dietary uses suggested.

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[9] For the relation of the act to sanitation see Chapter 24.

[10] If, however, the method of developing the color is used to market immature oranges, the oranges might be declared misrepresented.

Administrative Agency[11]

At the outset the enforcement of the act was under the authority of the Secretary of Agriculture, with the Food and Drug Administration being the active agency, it was later transferred to the Federal Security Agency. There have been speculations on the significance of this shift. Will it result in agricultural groups' having less influence in administrative decisions? Will it result in the medical group's having more influence, since the Public Health Service is also in the Federal Security Agency?

In 1938 the duties of the Food and Drug Administration were increased without appreciable increase in appropriations. Reports of violation show clearly the need for continued policing of food. A larger appropriation is needed to speed the formulation of the many standards needed in administrating the act.

Standards To Be Set Up in Administering the Act

Many instructions in the act, pertaining to food labeling as well as to such things as poison tolerances and shape and fill of container, are stated in general terms. Precise standards of several types must be formulated. They include:

1. Definitions and standards of identity. In time they should provide a comprehensive dictionary of foods. There has been a legal standard for butter since 1923, secured by special act of Congress. With that as a start, the Food and Drug Administration, in 1938, was faced with a long docket of foods to be defined.
2. Reasonable standards of quality. The establishment of standards for fresh fruits and vegetables is not permitted except for standards of maturity and the effect of freezing for avocados, cantaloupes, melons, and citrous fruits. Fruit and vegetable growers have maintained that federal standards for fruits and vegetables are unnecessary and furthermore that they might come into conflict with State grades. Some of the consequences of the lack of uniformity of State grades, to be discussed in Chapter 26, would lead one to infer that the existence of federal standards might be highly desirable.
3. Type of label in use for foods which have special dietary uses.
4. Reasonable standards of shape and fill of container.
5. Tolerances for poisonous ingredients, for example, residues of sprays on fruits and vegetables.[12]
6. Rules for regulating sanitary conditions of production.[12]

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[11] For methods used in enforcing this act see M. G. Reid, *Consumers and the Market,* 1942, Chapter 25.

[12] See Chapter 24.

Some people have expressed a fear that official standards of identity would have the effect of freezing technical progress, *Food Industries,* apropos of a new process developed for tomato catsup, reports amazement and delight "at the rapidity with which the amendment to the standard was achieved." [13]

Administrative Machinery and Procedures for Setting Up Precise Regulations

The Pure Food and Drug Act of 1906 was very vague concerning procedures to be used in setting up standards. In administering this act, a committee formulated tentative standards, but with each case brought into court the evidence to support any standard in question had to be presented. Over and over again in the many courts throughout the country witnesses had to be brought to testify what they considered should be the ingredients of strawberry jam, for example.

The 1938 Act provides that standards, once officially established, shall have the force of law.

The initiative in setting these standards may be taken by the Food and Drug Administration or interested parties may request that standards be established.

A Food Standards Committee continues to function. It is

> composed of four State Officials and two officials of the Food and Drug Administration. State membership tends to promote uniformity in action by the State and Federal Governments as well as to insure a broad viewpoint in dealing with the problems involved. In considering the reports of the administrative investigations and conclusions referred to it, the committee adopted the practice of holding informal public hearings at which trade and consumer representatives may appear and testify.[14]

These informal hearings are reviewed by the Federal Security Administrator. After such modifications as he may decide upon, they are published in the *Federal Register,* with the notice that a public hearing upon these proposals will be held at a specified date and place. Interested parties that cannot attend either in person or by counsel are invited to submit affidavits.

The act requires the following procedures:

1. Public hearings must be held which have been preceded by announcements setting forth the standards to be considered. All interested parties have the right to be heard.

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[13] September, 1939, p. 481.

[14] Federal Security Agency, *The Food and Drug Administration,* 1941.

2. These hearings, which are recorded, constitute the evidence on which the standard is based. Evidence to be considered is of several types: (*a*) that based on scientific findings, for example, the nutritive value of foods in those cases where claims are made that foods have special dietary uses; (*b*) that based on current anticipations concerning the composition of a food, for example, what people expect to secure when they buy strawberry jam and what they consider is substandard quality; and (*c*) that based on the psychological effect, for example, wording or method of packaging that creates a false impression. Evidence for *b* and *c*, in the main, comes from housewives. Very often representatives of women's clubs or members of consumers' organizations are asked to testify.

3. Regulations based on evidence presented are drawn up. In case of a controversy they are subject to judicial review within 90 days of their issuance. Any party which feels that it has not had a fair hearing may file a petition for review.

4. The court may uphold the regulations or call for a modification of the regulations in the light of evidence presented. In such a case they are returned to the Food and Drug Administration, and the further regulations promulgated then are subject to court review.

The hearings are a focal point of the procedure. Many people are invited by the Food and Drug Administration to testify, including home economists, members of the Committee on Food and Nutrition of the National Research Council, physicians, psychologists, and others. Numerous representatives from industry also come.

Several criticisms of the hearings have been made, some of which can best be described as interminable. Costs at time are high. *Food Industries* estimates that "the battle of sugar will probably cost a quarter million.[15]

> Of the 34 dockets which have come up for hearings under the FDA, only 21 have reached the stage of final standards. Average time required to fix a standard is 10 months.[16]

The bread-hearing record was 4,163 pages in length.

Some people feel that the hearings instead of being permeated with the "spirit of inquiry" are exactly like "adversarial proceedings." In place of a group meeting to discover a satisfactory standard, many of those present strive to magnify the importance of their evidence and to distort the evidence presented by others so that they will be forced to yield as little as possible[17] from the type of standard that might serve their short-run special interest.

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[15] *Food Industries,* February, 1940, pp. 36–7.

[16] *Food Industries,* February, 1942, p. 54.

[17] See *Food Industries,* June, 1939, p. 305.

The war is causing a sharp curtailment in the formulation of standards. A larger part of the effort of the staff of the Food and Drug Administration is being absorbed by inspecting food supplies for the U. S. armed forces and for lend-lease shipments.

Some Rulings Requiring Information on Labels

Standards of identity provide an opportunity to require information to be given on the label. For example "peas standards include the requirement that they be labeled to tell consumers when they are excessively discolored, artificially colored, when they are excessively broken, or cracked when they are not tender, and when they are too mealy. Canned peas that are not filled up to within $\frac{3}{16}$ of an inch of their tops must warn consumers of this fact on their labels." Similar requirements are imposed for canned fruits and other canned vegetables. Peach labels, for example must state variety; form in which packed, that is, peeled or unpeeled, whole halves, quarters, slices, or diced; the kind of syrup; density and sweetness addition of pits and kernels. In addition, if peaches are below a reasonable standard of tenderness, freedom from blemish, size, condition of fruit, they must be labeled as substandard.[18]

During 1941, regulations were promulgated "on food for specia dietary uses." These regulations are not to be limited to those foods used in the treatment of disease but include those which are "superior foods for general use." The Federal Security Administrator states:

> The requirement of the Act that fully informative labeling, as specified in regulations, appear on foods for which special dietary claims are made is squarely in line with the national program for better nutrition. The appearance of such labeling on foods having unusual dietary values will, I believe, stimulate the interest of consumers in their dietary needs and lead to a more intelligent planning of their daily meals. The educational program for better nutrition now being conducted as an essential to National Defense, will be furthered by label statements that are factual and informative, but not exaggerated.[19]

The rulings require that the label state the proportion of the minimum daily intake of vitamins or minerals in a given quantity of food. They became effective during 1942.

Standards of identity also require statements concerning substandard quality and substandard fill of container. The ruling promulgated by the

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[18] *Consumers' Guide,* Mar. 1, 1940, p. 2.

[19] Release of Food and Drug Administration Regulations as published in the *Federal Register,* Nov. 22, 1941.

Federal Security Agency requires substandard quality to bear the statement "Below Standard in Quality; Good Food—Not High Grade." When substandard fill occurs, the label shall bear the statement "Below Standard in Fill."

Economic Pressures Affect Standards of Identity

Again and again at the hearings and in the complaints filed against standards promulgated, economic pressures make themselves felt. They were apparent in the formulation of a standard for cream cheese, for example. Concerning it, *Food Industries* writes:[20]

> In part, at least, the long delay has been occasioned by the drop in fat content over recent years, made possible by the use of various gums to hold the water in the cheese. Food and Drug officials can't reconcile this practice with their philosophy of what a standard food should be. Rather than arbitrarily dictating a standard, however, repeated efforts have been made to reach an amicable settlement of the conflicting views. The result has been considerable delay.

The National Preservers Association objected to the proposed standard of identity for preserves, jellies, and fruit butters that requires the label declare any use of pectin and artificial acidulants. Certain processors desired to avoid declaration when these were used.

The standards of identity of sugar in canned fruits, margarine, and dried skim-milk solids are of sufficient interest to consider them and the ensuing controversies in some detail. A general survey of some issues involved will be helpful at this point.

In setting the standard of a processed food all ingredients must be defined. Optional ingredients must be listed and their quantities, if and when included, may have to be specified. In addition, decisions must be reached concerning the information to be required on labels. Certain criteria for appraising standards from the standpoint of consumers are probably widely accepted. A few are suggested here: (1) Optional ingredients should include those in customary use, and those which nutritionists consider would contribute to more adequate diets. Moreover, they should permit additions to the list if ingredients are later found which are suitable in giving a food its customary characteristics. (2) Information required should include that helpful to consumers in differentiating among the various qualities which result from differences in ingredients and in processing. (3) In specifying quantities of optional ingredients, customary practice may be the guide or for certain ingredients, especially those having prestige value and whose quantity is not readily recognized by consumers, it may be necessary to require a specified minimum if any claim is to be made of its inclusion. This, for example, applies to the addition of various vitamins to processed foods. (4) On the negative side it seems unnecessary and in some ways undesirable—in that it makes information on the label more complex without serving a useful purpose—to require technical information concerning ingredients or method of processing when it does not affect the characteristics important to consumers. There is, for example, no reason why margarine labels should state the type of oil used if the type of oil used does affect qualities important in consumption. In other words, in setting up standards it is important to get on the label information important to consumers and to keep off the label that which is unimportant.

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[20] February, 1942.

Sugar in Canned Fruits[21]

Sugar has again and again come into the hearings on various processed foods. Attention here will be directed to its place in the standards of identity of certain canned fruits. The main question to be considered is whether the same or different information should appear on the label of canned peaches; for example, sweetened entirely with sucrose (cane or beet sugar), as on those sweetened with a mixture of sucrose and dextrose (corn sugar) and/or corn syrup?

Sugar obtained from sugar cane and beets has been and still continues to be the main sugar used in preserving foods and in giving them the sweetness and certain other characteristics desired. In recent years dextrose and corn syrup has in some measure replaced sucrose in food processing. The desire of the canners, for example, to make this substitution may be laid to two factors. The use of dextrose or corn syrup in place of sucrose may result in a superior product—certain characteristics or combinations of characteristics may be secured only in this way. In addition, the price per pound of dextrose has been somewhat less. In 1939, for example, the average price per pound of the various sugars used in processing dried and canned fruits, as reported in the 1939 census of manufactures, was as follows:

Type of Sugar	*Price per Pound (in Cents)*
Beet	4.536
Cane	4.525
Corn	3.788

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[21] The author is indebted, for suggestions bearing on this section, to R. E. Buchanan, Director of the Agricultural Experiment Station of Iowa State College, and to W. J. Shannon of the Department of Chemistry of Iowa State College.

In a quart of fruit containing ¼ pound of sugar the replacing with dextrose of 1 pound of sucrose in every 4 pounds of sucrose would result in a saving of approximately one-twentieth of a cent per quart of fruit. Measured in this way, the saving possible from such substitution appears to be very small. It should be noted, however, that at the prices listed above, corn sugar is approximately 16 per cent less costly than the other sugars.

At the outset it is of interest to note the relative importance of these sugars in food processing in general. In 1939, 35.5 pounds of sugar per capita were used in food processing, 2.4 pounds (or 6.7 per cent) of which were corn sugar. Bakery products came first among the various foods in the volume of corn sugar used—43.3 per cent of the total quantity utilized in food-processing industries going here. Beverages came next, taking 27.1 per cent; and the canned and preserved fruits and vegetables (including jellies, preserves, and pickles) taking 8.2 per cent. In the canning and drying of fruits and vegetables, corn sugar in 1939 constituted 4.1 per cent of the total sugar used.[22] It has been with respect to canned and preserved fruits that much of the "sugar" controversy pertaining to standards of identity has so far centered.

In 1930 the Secretary of Agriculture laid down the ruling that refined corn sugar might be used in food without a declaration of its use being made on the label. The issue was reopened by the passage of the Federal Food, Drug, and Cosmetic Act of 1938, which called for official standards of identity. In January, 1940, standards of identity were promulgated for several canned fruits; and in January, 1942, following further hearings, amendments to the 1940 standards were announced.[23] The standards of identity permit the use of various sweetening agents—cane, beet, and corn sugar, and corn syrup. They require that the labels state the density of the syrup used—whether light, heavy, or extra heavy. Specifications of the density of the types of syrup are included in the standards for the various fruits. The regulations also state the extent to which corn syrup and corn sugar may be substituted for sucrose. The dextrose, for example, shall not be more than one-half the weight of the sucrose used. In other words, 1 pound in every 3 pounds of sugar may be dextrose. Nothing need be said on the labels as to the type of sweetening agent used.

Findings of fact of the official hearings—a part of the procedure of formulating the standard of identity—are of interest:[24]

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[22] Preliminary reports of the Sixteenth Census of the United States.

[23] *Federal Register,* Jan. 8, 1942. For 1940 rulings see *Code of Federal Regulation of the United States of America,* 21 CFR, Supp. 2.701. The major revision removed certain requirements concerning the substitution of dextrose for sucrose.

[24] *Federal Register,* Jan. 8, 1942, pp. 717–22.

FINDING 26:

> One of the differences . . . between the saccharin substances used in the preparation of the packing media for canned fruits is a difference in their degree of sweetness, sugar being the sweetest, dextrose being about two-thirds as sweet as sugar, and corn sirup being about one-half as sweet as sugar.

FINDING 27:

> When equal weights of the solids of sugar . . . of dextrose, and of corn sirup . . . are each dissolved in water to make solutions of the same volume, the densities and the calorific food values are not materially different from each other.

FINDING 29:

> By reason of their lesser sweetening properties, dextrose or corn sirup, or a mixture of these, are always used in combination with sugar when used in preparing sweetened packing media for canned fruits, and the quantity of dextrose or corn sirup used is always limited to such amounts that the packing media in the finished canned fruits is substantially of the same degree of sweetness as one of like density prepared from sugar alone.

On the surface it may seem a little difficult to reconcile these three findings of fact which point out in the first place that dextrose has two-thirds the sweetness of sucrose; next that pound for pound they give syrups of the same density; and finally that syrups of the same density within certain limits of substitution will give "substantially the same degree of sweetness." In part the matter turns on what is meant by "substantially" in finding 29. Presumably the use of 1 pound of dextrose in every 3 pounds of sugar would result in a product having 10 per cent less sweetness. It would appear that for many consumers that this is not an observable difference in sweetness.

FINDING 32:

> Such difference as may exist between . . . packing media (within the limits of substitution prescribed) is not noticeable to consumers in the finished canned fruits unless they make comparative tasting tests and some consumers cannot distinguish between them when making such tests.[25]

It was on the basis of these findings that the regulations were formulated.

The cane sugar industry opposed the ruling, including the failure to declare on the label the presence of additional[26] dextrose; and the corn sugar industry favored the ruling. It is of interest to inquire as to the basis of their attitudes.

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[25] *Ibid.*

[26] Dextrose is naturally present in the fruit. In addition in the canning process the acid of the fruit hydrolyzes the sucrose into dextrose, a less sweet sugar, and levulose, a more sweet sugar.

They seem to be based in large part on the belief that there exists among consumers a prejudice that leads many of them to look upon canned fruits sweetened with dextrose and/or corn syrup as inferior products. And it has been demonstrated on many occasions that ideas, irrespective of properties of food, affect consumer choice. In the event of a ruling requiring a declaration of the presence of sweetening agents thought to be inferior, it is held, by the corn sugar industry, that grocers would be unwilling to stock the canned fruit containing corn sugar or corn syrup and that it would be very difficult to reach consumers in order to demonstrate the merits of the fruit in which these were used, and thus to eliminate the misconception.

Much has been said about the existence of this consumer prejudice. Little attempt appears to have been made to discover its extent, its origin, or its strength. In so far as the use of dextrose makes a product with superior qualities one would think that processors would want to boast about it. Such action, it may be felt, should wait until the existing prejudice has in part disappeared. It is of interest that many candy bars now carry the words dextrose and corn syrup on their labels. The use of corn syrup in homemade candy would prepare many consumers for its presence in this product.

In view of the interindustry controversy, it is of interest to ask how consumers have fared in the matter. Information of the presence of dextrose in a food is especially significant if characteristics of the food important to consumers are affected by its use. Sucrose and dextrose are different in their sweetening power. Findings of fact of the F.D.A. would indicate, however, that consumers are more sensitive to the density of the syrup of the canned fruits than to its sweetness. So far as a pound-for-pound substitution of dextrose for sucrose occurs, and consumers do not notice a difference in sweetness, then the canned fruits whether processed with or without dextrose are to all intents and purposes identical in sweetness, density, and food value, and information concerning the substitution would be unnecessary so far as it relates to these qualities.

If, however, in any processed food, consumers are more sensitive to sweetness than they are in canned fruit and, if dextrose replaces sucrose, the processor in seeking to maintain a given degree of total sweetness will have to increase the total quantity of sugar. The total calories from sugar would thereby be increased. Information concerning caloric content might be required on the label. Where substitution brings a difference in observable sweetness, it may be important to require information on differences in sweetness. The provision of such information would depend, of course, on the availability of reliable measure of sweetness. Existing price ratios will prevent a substitution of dextrose for sucrose in foods where difference in sweetness is important. Price ratios are, however, subject to change.

The findings, it should be noted, merely report that no substantial difference in sweetness is apparent when a pound-for-pound substitution occurs within certain limits. A failure to indicate relative sweetness may result in consumers who are highly sensitive to differences in sweetness being denied important information. This is true of those who like both low sweetness with a given density of syrup as well as high sweetness with a given density. Furthermore, some people may accept the principle, expressed in the findings of fact on the standard of identity of oleomargarine, that certain information should be provided because "some consumers are interested in knowing." On these grounds, withholding the information that dextrose has been added in processing may be held to be a violation of consumer rights for those people who want to know when dextrose or corn syrup are being substituted for sucrose. They may be interested in such information even after being presented with scientific data on the density and caloric value and the findings of fact of the Food and Drug Administration bearing on the matter. On somewhat similar grounds, of course, some people might feel that labels should carry information as to whether cane or beet sugar is used—there are still some people who insist that they are not identical foods.

The Standard of Identity of Margarine

A controversy arose in 1941 over the standard promulgated for margarine which required a content of at least 80 per cent fat (the standard required for butter); further description of certain ingredients used must appear on the label.[27] Optional ingredients include coloring and flavoring[28] and the addition of vitamins and preservatives, provided that consumers are advised[29] of these facts on the labels. It is important to note that *this standard permits only those ingredients to be used in margarine that manufacturers of it have used in the past* and that are widely used by many processors in other foods. The main change effected is the mandatory ruling on fat content and the requirement that the margarine labels must carry specific information. In addition, margarine cannot be described as being enriched with vitamins unless they have been added in amounts at least equal to the minimum specified in the standard.[30]

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[27] See *Federal Register,* June, 1941, p. 2762.

[28] It is of interest that artificial flavorings are widely used in butter. They are secured through the use of bacteria cultures and by chemicals. Both the butter and the margarine industries have been active in developing them.

[29] Considerable controversy has ensued over the fact that benzoate of soda, a preservative, is permitted in margarine but is not permitted in butter. With margarine the argument has been advanced that it is used widely by low-income families and that they have poor refrigeration facilities; hence the presence of a preservative in margarine is especially desirable.

The action taken illustrates very well the tactics of well-organized pressure groups in attempting to influence administrative decisions as well as to influence the action of competing groups.[31]

From the dairy industry protests, through letters and telegrams, poured in on the Federal Security Administrator and on senators, on congressmen, and on the Secretary of Agriculture. Dairy organizations sent out letters and brochures to individual members. In these ways as well as through farm and dairy magazines people were urged to protest in various ways against the standard. Conferences of the dairy industry were held in which the margarine standard was the major theme, and formal resolutions protested its establishment and called for its withdrawal and revision. On the other hand, publications of the margarine and cottonseed oil industries expressed strong support for the standard.

Even though many farmers who sell cream could readily shift some of their resources employed in dairy production into other uses, and even though soy bean production has been expanding rapidly in many dairy areas,[32] so that the income of many dairy farmers would be reduced little if at all by some increase in the consumption of margarine, to make the objection to the margarine standard the rallying call for the industry as a whole was attempted. Furthermore, it was claimed that the standard was only one of many types of adverse action held to be probable and perhaps even imminent. Various events, some of them in all probability having no relationship to the standard and some of them certainly misinterpreted, were pointed to as evidence that a general attack on the dairy industry was being made. Attention was, for example, drawn to the removal of butter from the surplus list of the food-stamp plan. Complaints were made that the U. S. Bureau of Home Economics had issued bulletins "lauding" (probably to be translated as mentioning) the merits of margarine as a fat in the diet. Extensive criticism has been heaped on a skit prepared by the Consumers' Counsel of the A.A.A. This skit in fact was limited to explaining the new standard and saying something about the relative merits of margarine in terms of nutrients and cost—information of considerable value to some consumers.

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[30] South Carolina has ruled that margarine sold in that state must be fortified up to at least 9,000 U.S.P. units of Vitamin A per pound.

[31] In this discussion the author is greatly indebted to Elizabeth Fautz for research bearing on pressure-group activities.

[32] In 1940 soy bean oil constituted 34 per cent of the total oil used in the manufacture of margarine. Even though the price per pound of soy bean oil is much less than the price per pound of butterfat, the net returns to the farmers from soy beans in some cases is greater than the net returns from butterfat.

What kinds of gains did the dairy industry hope to make by objecting to the standard of identity for margarine that had been promulgated? One can only infer from the things that were said and done what the objectives were. Among them seemed to have been the following:

(*a*) To get new hearings and in addition to create an environment in which their influence in a revised standard would be maximized.

(*b*) If not successful in *a,* to minimize or obliterate the effect of the standard through creating a situation in which the margarine industry would be restrained from certain action and legislators would be influenced to provide regulations making the standard ineffective.

(*c*) To force concession in other fields as a means of placating an industry agitated over the promulgation of the standard. Concessions might take many forms such as the withdrawal of efforts to repeal the federal taxes on margarine, the placing of butter on the surplus list of foods to be purchased with blue stamps by families participating in the food stamp plan, pegging the price of butterfat at a higher level, increasing the shipments of butter under the lend-lease agreement.

Apropos, of the last of these objectives the dairy industry does not appear to be in complete agreement. Would it be better, for example, to have large shipments of butter abroad as a means of maintaining a relatively high price for butterfat? Or would it be better to meet the nutritional needs of the British people through the shipment of margarine and to leave the butterfat which is being made available for American consumers. The latter course many felt might lessen the pressure for improvement in the quality of margarine and would limit the number of consumers who might experiment with its use.

Among the first steps taken was an attempt to delay the date of enforcement. A request was made to the Federal Security Administrator to set the standard aside and to hold further hearings. This the administrator refused to do. He pointed out that all the rules concerning procedure had been fulfilled, and that the promulgation of the standard had been preceded by lengthy hearings at which the dairy industry had had plenty of opportunity to present testimony. Certain dairy organizations next attacked the standard in the court, asking for a review. Attorneys of the Federal Security Agency asked the Federal District Court to dismiss the case brought by the dairy organizations. This the court refused to do. Sometime during the latter part of 1942, a decision will probably be rendered on the standard. The court may uphold the Federal Security Administrator or it may remand the standard to him on the grounds that it is based on insufficient findings of fact or that it incorrectly interprets the findings of fact secured at the hearings.

Threats of retaliations have been made, against both the Federal Security Administrator and the margarine industry. It was suggested, for example, that all regulation of certain foods be transferred to the Department of Agriculture and that the standard be declared invalid by an act of Congress. Some of the Northern states threatened to enact legislation against the products of Southern states if they should support the standard. Increased efforts were directed to blocking any attempt to remove the federal taxes on margarine.[33]

The Andresen bill was introduced into Congress to nullify the effects of the standard.[34]

> To promote and protect the public welfare by prohibiting the shipment and sale in interstate and foreign commerce of oleomargarine containing any milk or its products, or which is yellow in color, or which is in semblance or imitation of butter as to color, flavor, or appearance; to regulate the advertising of margarine; to provide for the enforcement of this Act. . . .

With respect to the advertising of oleomargarine the bill states:[35]

> It shall be unlawful for any person to disseminate, or cause to be disseminated, any advertisement or other publication, by United States mails, or in interstate or foreign commerce by any means, which directly or indirectly displays oleomargarine as being yellow in color, or any advertisement which characterizes oleomargarine in words, symbols, or other representations associated with milk or its products.

This bill, like many others of its kind related to special interests, makes its initial appeal by acknowledging that the promotion and protection of public welfare are desirable social objectives.

As a gesture of opposition another bill was introduced:

> To promote and protect the public welfare by regulating shipment and sale in interstate and foreign commerce of butter containing any artificial color or flavor or which is chemically neutralized, unless such butter is so labeled; to regulate the advertising of such butter. . . .[36]

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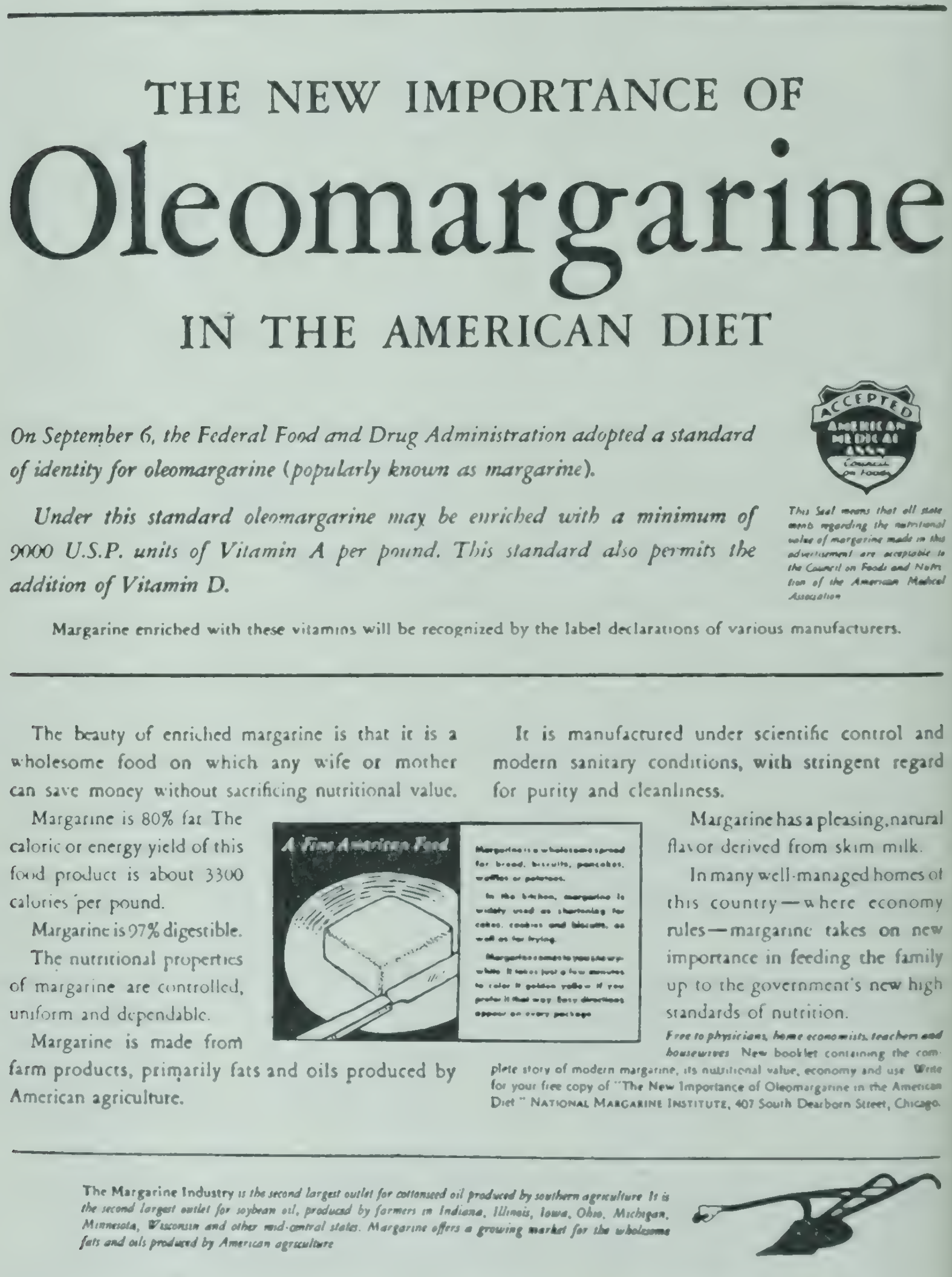
[33] See Chapter 22.

[34] 77th Congress, 1st Session, H.R. 5,700 and S. 1921.

[35] *Ibid.*

[36] 77th Congress, 1st Session, H.R. 5,894. Oct. 22, 1941.

After the promulgation of the standard, rumors were current that a large-scale advertising campaign was being planned by the processors of



THE NEW IMPORTANCE OF

Oleomargarine

IN THE AMERICAN DIET

On September 6, the Federal Food and Drug Administration adopted a standard of identity for oleomargarine (popularly known as margarine).

Under this standard oleomargarine may be enriched with a minimum of 9000 U.S.P. units of Vitamin A per pound. This standard also permits the addition of Vitamin D.

This Seal means that all statements regarding the nutritional value of margarine made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association

Margarine enriched with these vitamins will be recognized by the label declarations of various manufacturers.

The beauty of enriched margarine is that it is a wholesome food on which any wife or mother can save money without sacrificing nutritional value.

Margarine is 80% fat. The caloric or energy yield of this food product is about 3300 calories per pound.

Margarine is 97% digestible.

The nutritional properties of margarine are controlled, uniform and dependable.

Margarine is made from farm products, primarily fats and oils produced by American agriculture.

A Fine American Food

Margarine is a wholesome spread for bread, biscuits, pancakes, waffles or potatoes.

In the kitchen, margarine is widely used as shortening for cakes, cookies and biscuits, as well as for frying.

Margarine comes to you snow-white. It takes just a few minutes to color it golden yellow if you prefer it that way. Easy directions appear on every package.

It is manufactured under scientific control and modern sanitary conditions, with stringent regard for purity and cleanliness.

Margarine has a pleasing, natural flavor derived from skim milk.

In many well-managed homes of this country—where economy rules—margarine takes on new importance in feeding the family up to the government's new high standards of nutrition.

Free to physicians, home economists, teachers and housewives New booklet containing the complete story of modern margarine, its nutritional value, economy and use. Write for your free copy of "The New Importance of Oleomargarine in the American Diet." NATIONAL MARGARINE INSTITUTE, 407 South Dearborn Street, Chicago.

The Margarine Industry *is the second largest outlet for cottonseed oil produced by southern agriculture. It is the second largest outlet for soybean oil, produced by farmers in Indiana, Illinois, Iowa, Ohio, Michigan, Minnesota, Wisconsin and other mid-central states. Margarine offers a growing market for the wholesome fats and oils produced by American agriculture*

margarine. One advertisement did appear in the *Saturday Evening Post.* (See above.) Dairy organizations protested that this advertisement was misleading. Two statements in particular were subjected to criticisms: (1) the caption of the advertisement emphasizing the "new" situation; and

(2) the statement implying that butter could be replaced in the diet by margarine without sacrificing nutritional value. Along with complaints about the caption went the fact that some people in defending the standard had emphasized that nothing was being permitted that had not been practiced for years, from which some people deduced that nothing new had been inserted.

Exaggerations to the degree of those in this advertisement are fairly widespread in the advertising of foods. They usually are looked upon in the trade as harmless trade puffing, although certain rulings of the Federal Trade Commission would suggest that that agency would consider that some misrepresentation was involved. A brief examination of the extent of misstatement is of interest.

An accurate caption would probably call for the substitution of the preposition "to" for the preposition "in." There certainly is no evidence as yet that the new definition has made margarine more important in the diet. Furthermore, the caption itself is misleading unless changes have probably occurred in the quality of the margarine being offered for sale since the formulation of the standard.

What about the "new importance"? Is there in fact something new to which an advertiser is entitled to draw attention—something new and important to consumers? The formulation of the official standard of identity of any product injects a new factor into the situation. It might be true if that margarine advertised now conforms to the standard of identity formulated by the U. S. Food and Drug Administration even though no change has occurred in its quality. This statement has in itself a prestige value. What about a change in the product? Has it been improved as is suggested in the advertising? It seems highly probable that a larger proportion of the margarine than formerly is being enriched up to 9,000 U.S.P. units of Vitamin A per pound. Here was something new and important. The permissive standard had a mandatory side: no margarine could be described as enriched unless the standard was met. It seems highly probable that the result was a larger proportion of high quality margarine in so far as Vitamin A content is concerned.

What about the statement that implied that margarine is a nutritional substitute for butter? Without doubt the addition to margarine of Vitamin A in the quantities specified greatly reduces the nutritional danger of substituting margarine for butter. This change alone may not, however, make it a perfect nutritional substitute—few if any foods are perfect substitutes for any other food. Butter, especially that produced during the spring and summer months, probably has more Vitamin A than 9,000 U.S.P. units per pound. Furthermore, there are some preliminary investigations and much speculation as to the possibility of butter's having certain fatty acids which are not found in margarine and which have a relationship to nutritional health. There is some evidence that butter has unique fatty acids but little evidence that this difference in two breadspreads would be important in the diets which families consuming margarine are likely to have.

The dairy industry pointed to "misleading statements" as further evidence that the standard should be revised. Nowhere in the dairy publications was any mention noted of the fact that the Federal Trade Commission might be urged, under the powers conferred on it by the Wheeler-Lea Act, to see that inaccurate statements are eliminated from the margarine advertising. No matter what the standard of identity of any food, false advertising may occur. An agency for dealing with it does exist.

In a controversy of this type the legality, the effects, and the desirability of the standard should all be separately considered. It is the function of the courts to decide the legality, although the judgment rendered may be affected somewhat by the effects anticipated and by the ideas concerning the desirability of these effects. In anticipating or measuring effects, care should be taken to investigate the accuracy and the completeness of the facts presented. In weighing the desirability, care must be taken to focus attention on broad social objectives.

In this controversy many facts presented have been inaccurate and many arguments have been irrelevant. Most important of all is the fact that the focus of attention is entirely wrong. The battle is one to protect status quo by means of political power. Fairness to consumers is overlooked as well as steps to facilitate adjustments in production that will shift them to more important uses. The basic issue has already been stated in Chapter 22 where taxes on margarine were discussed. Consumers want information that will help them to make important distinctions between products. If a less costly product will serve in whole or in part in place of a more expensive one, it is to their interest to have that product sold freely in the market. There is no more reason for prohibiting the sale of margarine which in a greater or less extent resembles butter, providing that it is truthfully labeled, than it is to forbid the sale of canned veal mixed with a little chicken to make it more acceptable or to prohibit the sale of rayon that looks like silk or like wool.

Dried Skim-Milk Solids

In the earlier discussion it was pointed out that national diets would probably be improved if more skim milk were used for human food even though skim milk for animal feeding were reduced somewhat. Dried skim-milk solids are included in many foods, including bakery products, ice cream, and candy. In setting up standards of identity, the dried skim-milk industry has sought to have dried skim-milk solids, when used in bread and ice cream, for example, described on labels merely as dried-milk solids or as milk defatted solids. The Food and Drug Administration has held, however, that the term dried-milk solids could accurately be applied only when they came from whole milk. The same objection cannot, of course, be raised to the phrase "defatted milk solids."

During April, 1942, a bill was introduced into Congress proposing the following statutory definition of "non-fat dry milk solids":

> That for the purpose of the Federal Food, Drug, and Cosmetic Act of June 26, 1938 . . . dry milk solids or defatted milk solids is the product resulting from the removal of fat and water from milk, and containing the lactose, milk proteins, and milk minerals in the relative proportions as in the fresh milk from which made. . . . The fat content is not over 1½ per centum unless otherwise indicated.[37]

If this bill becomes law, dried-milk solids from whole milk could of course be differentiated from those derived from skim milk by being described as whole-milk solids.

The dried skim-milk industry might support such a bill on several grounds. It might even be contended that a little consumer deception was a good thing, since increased consumption of skim-milk solids would improve the quality of many diets. Such an argument might be based on the assumption that consumers underrate the nutritional importance of skim milk, associating nutritional value wholly or largely with the butterfat. In addition, it might be pointed out that many firms have been using the term dried-milk solids to refer to non-fat-milk solids. In spite of a federal ruling, this might occur, for example, in bread and ice cream which are largely locally produced and consumed and hence outside the jurisdiction of the rules bearing on interstate commerce.

The dairy industry is not unanimous in its support of the Patman Bill which calls for statutory definition of dried skim-milk solids. An editorial in the *Creamery Journal* states:

> As the full import of this bill is studied we believe it will be found that it will, if passed, open the way for abuses by interests inimical to the dairy industry and open the way for nullification of many of the safeguards for which the industry has fought long and hard. . . .[38]

The controversy concerning the definition of dried skim-milk solids raises several questions. When consumers have mistaken notions concerning the relative merits of a food, should the standard of identity be framed in order to get their acceptance of a food which they might otherwise reject? Or should the foods be described so that the labels indicate important differences and so that consumers are educated to appreciate the merits of various foods? Those who hold that the latter alternative is the wiser course might point to the rapid change in consumer acceptance of liver when its nutritional merits were demonstrated. There seems no reason to believe that consumer prejudice concerning skim-milk products cannot be considerably modified through education in a relatively short period of time, especially now that nutrition education as well as the advertising of the sellers of dried skim milk is likely to stress the value of this food.

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[37] 77th Congress, 2d Session, H.R. 7,002.

[38] August, 1942, p. 12.

There is a precedent for the modification of a descriptive term because of consumer prejudice. Nicotinic acid, for example, is to be known as niacin because many consumers think of nicotine as a poison.

If objection is taken, because of the deception involved, to the use of the term dried-milk solids to describe skim-milk solids, it is important to consider whether there are other terms that would avoid deception and at the same time evade the prejudice. Defatted milk solids or milk solids less fat do differentiate whole-milk from skim-milk solids.

It may be that many persons greatly overrate the extent and the strength of the prejudice against skim milk. It would be interesting to know whether sales of Bisquick, for example, declined when labels revealed that dried skim milk was one of the ingredients.

Some Enforcement Cases

The Food and Drug Administration can proceed against any misrepresentation not only in terms of the standards which it formulates but also in terms of any official standards.[39] The Agricultural Marketing Service has formulated standard grades for many fruits and vegetables. In 1941 the Food and Drug Administration ordered its first seizures of canned goods using A and fancy-grade labels. The Food and Drug Administration contends that "Fancy" grades are looked upon by consumers as A grade. The seizures were made on the ground that an official A grade for the product seized has been set up by the Agricultural Marketing Service, and that such a label must be used only if products conform to official standards. The *Food Field Reporter,* Apr. 14, 1941, expressed the opinion that if the courts uphold the legal objectivity of the Agricultural Marketing Service standards, grade-labeling proponents will receive their greatest boost, but, if not, standards for grade labeling will suffer a setback. The action to date of most canners would indicate that they are going to accept the seizure of the Food and Drug Administration as evidence of violation of the law.

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[39] See Chapter 26.

Federal Trade Commission

The Federal Trade Commission, in 1914, was given authority to check unfair competition. Its powers were limited to cases where practices were injurious to competitors; in other words it could not take steps to protect the public interest unless competitors were involved. Authority to do the latter was, however, given in 1938 by the Wheeler-Lea Act. At the present time the Food and Drug Administration and the Federal Trade Commission appear to have overlapping authority. In March, 1942, the U. S. Circuit Court of New York upheld the Federal Trade Commission authority over food labels.

Regulation of Food Labeling by the States

The revision of the federal food and drug legislation has brought similar revision in many states. Further change in many state laws is needed to bring them into line with desirable federal legislation. Even more important in many cases is improvement in enforcement. In one state after another, the bureau responsible for enforcement of food laws is staffed by political appointees to whom competence on the job is a matter of minor concern. Enforcement of such food standards as exist is often inadequate.

Further informative labeling which is required by states will be considered in Chapter 26.

Official Quantity Weights and Measures and Their Inspection

In spite of the fact that Article I, Section 8, of the Constitution of the United States gives Congress the power to fix standard weights and measures, this power together with the inspection of weights and standards has been left to the separate states. In appraising the present situation a recent report states:[40]

> Some states have excellent laws while some have no general legislation; some have excellent enforcement while others have none; some provide fairly adequate funds for enforcement personnel and

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[40] *Check Your Weights and Measures,* Consumer Division, National Defense Advisory Commission (mimeo.), 1941, p. 4.

> activities; others provide no funds at all. According to the judgment of one weights and measures official, only 12 states have effective weights and measures laws and enforcement; 12 other states have about 50 percent of what they should have; another 12 have only a fraction of what is needed; while the remaining 12 have practically nothing. Where there is no enforcement activity it is estimated that approximately half of the weighing devices fail to meet reasonable standard requirements; as a result the buying public is losing money through short-weights and short-measures or the merchants are losing money by over-weights and over-measures.

New York City has been especially active in the inspection of weights and measures. In addition to testing their accuracy, the city inspects sales.

> A force of inspectors is assigned to regular purchasing projects. Sample purchases are made in stores about which customers have complained or in which for other reasons the supervising officer thinks tests should be made. Records are kept, on the basis of which the proprietor may be warned or arrested and prosecuted in court. It has been found that heavy jail sentences have much more effect than the fines previously imposed.[41]

Inspection through actual purchase is needed since, even when scales are accurate, there are many ways of giving short weight; for example: weighing paper with meat, placing shot inside a chicken before weighing, weighing a hand or a thumb with the product.

There seems little doubt that deception in weights and measures results in serious loss to consumers. Some estimates made should be a challenge to those seeking to protect consumers' pocketbooks.

> On the basis of estimates made by weights and measures officials it is not unlikely that the typical American family of four loses as much as $45 per year as a result of short-weighing and short-measuring practices. For the 30 million families in the nation, this would amount to $1,350,000,000 annually . . . amounting to an unnecessary levy of 85 cents a week on every American family.[42]

> A survey of practices among the states indicates that inspectors found short-weights or short measures in 20 percent of their investigations. Similar shortages were found by city inspectors in 17 percent of their investigations, and in 14 percent by county inspectors. . . . 7 percent of the bread offered for sale, and 5 percent of the prepackaged merchandise.[43]

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[41] *Ibid.*, p. 5.

[42] *Ibid.*, p. 1.

[43] *Ibid.*

> In 1936 . . . in New York City over 100 retailers were found selling six-ounce packages of bacon as half-pound packages and four years later 850 out of 1,026 bags of flour checked were found to be short-weight from ½ ounce to 20 ounces.[44]

Some estimates have been made of the cost of good inspection, and the county of Los Angeles provides an estimate on saving effected by its inspection system.

> Operating under a model statute with funds equivalent to at least 6 cents per capita a weights and measures office could and should perform an effective job of protecting consumers and honest merchants from all types of deceptive market practices.[45]
>
> The last annual report for Los Angeles County reveals a total operating expense of $85,394.04. This is the equivalent to a per capita cost of slightly over 3 cents. On the other hand the report indicates that the activities of the weights and measures bureau saved consumers in one year $750,000 on bread, $250,000 on butter, $130,000 on berries and $90,000 on milk. A return of 1¼ million dollars on a $85,000 investment represents good finance and good government. The report emphasizes, however, that a per capita expenditure of about 6 cents would be necessary to do a complete job, whereas the average per capita expenditures for states is 2.4 cents and by cities 4.6 cents.[46]

Standard Measures Rather Than Count

Many foods purchased by units are far from being identical in measure. This is very true of bread, for example. In a few states bread must be labeled, in some states it can be sold only in specified weights, and in others bread must be sold by the pound. The Model State Law proposes that the standard loaf of bread shall weigh one pound. Variations in size to be allowed include, ½, 1½, or multiples of one pound. Stale bread is not included in the ruling but must be sold by weight.[47] This proposed law also requires all small fruits not sold in standard containers to be sold by weight.

New York has a law governing weight of bread similar to the model law. The ruling does not, however, apply to rolls and fancy bread, or to stale bread sold as such, or to bread bearing in a conspicuous position a statement of net weight.

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[44] *Ibid.,* p. 6.
[45] *Ibid.,* p. 7.
[46] *Ibid.,* p. 8.
[47] U. S. Dept. Com., Nat. Bur. Standards, Letter Cir. 620, Dec. 13, 1930, p. 9.

For some foods, sale by weight rather than by count is increasing. During the past three decades bananas to an increasing extent have been sold by weight rather than count. In a few places oranges are sold by weight.

Attempts occasionally have been made to determine how consumers would react to a change in the unit of sale, for example, from dozen to pounds. Liston, for example, when interviewing 120 household buyers in Vermont asked: "Do you think there should be a law requiring eggs to be sold by weight per dozen?" One-half of the household buyers thought that such a procedure would be a convenience and a protection to consumers, one-fourth did not approve and one-fifth were non-committal. Liston goes on to point out that "this does not mean that half of these women felt that size was unimportant; on the contrary, most of them said that they preferred to buy eggs that were sorted as to size and priced accordingly." [48]

Weight and Volume Measures Combined

Because of the large amount of air incorporated into ice cream, it is sometimes proposed that it be sold by ½-pound, 1-pound, and 2-pound measures. New York has eliminated some deception in its sale by specifying a minimum weight per gallon.

Quantity Stated on the Label

Since 1906 the label of every food package moving in interstate commerce has had to bear a statement of net weight or measure of contents. Where drained rather than net weight is the factor of greater importance, the net-weight figure may be deceptive. Standards of identity and minimum acceptable quality tend to reduce deception on this score. The Federal Food, Drug, and Cosmetic Act of 1938 requires that each label on packaged food, drugs, and cosmetics bear an accurate statement of the quantity of contents in terms of weight, measure, or numerical count. With many types of canned fruit, numerical count provides information as to number of servings. Intelligent use by consumers of quantity statements on labels is limited because of the difficulty experienced in determining price per pound of products in a container having, for example, 3¼ or 11¾ ounces.

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[48] Vt. Agr. Exp. Sta. Bul. 415, 1937, p. 17.

Shape and Fill of Container

The Federal Food, Drug, and Cosmetic Act of 1938 requires that containers shall not be "so made, formed or filled as to be misleading." Furthermore, canned fruits and vegetables that are slack filled must bear a substandard label.

Consumers' Guide, May, 1940, reports the following as examples of changes that have been made:

> 1. False bottoms in candy boxes and cheese packages, powder boxes, and thick glass and elongated necks of bottles are no longer allowed.
>
> 2. The same quantity of product is being sold in a much smaller package: for example, a 2-ounce package of nutmeg shrank from 11 to 9.3 cu. in., a drop of 15 percent; a 14-ounce package of coffee shrank from 78 to 63.5 cu. in., a drop of 19 percent; and a 1½-ounce package of grated cheese shrank from 13.9 to 10.6 cu. in., a drop of 24 percent.

Simplification of Containers

Factory packaging of food has decreased the sale of food by standard measures; the use of pound and pint measures has steadily declined. Apart from a few packaged foods such as milk, which is sold only in ½ pints, pints, quarts, or multiple quarts, and butter, sold largely in ¼-, ½-, or 1-pound packages, food packages involve minute differences which interfere with price comparisons. At the present time, with the introduction of paper containers for milk, odd sizes even for this food are making their appearance. What looks like a pint or a quart may be much less. It is important that this practice should not be allowed to get established.

Some mandatory simplification of containers has occurred. By the Small Containers Act of 1916, the U. S. Department of Agriculture reduced greatly the sizes of till and berry boxes that could be used for interstate shipment of many fresh fruits and vegetables. The difference in size permitted was such that there was little likelihood of a consumer's mistaking one size for another. In 1928 the U. S. Standards Containers Act reduced the sizes of hampers and various splint and other market baskets. This act reduced misrepresentation from undersized containers, false bottoms, inner walls, and odd shapes. Again, only products moving in interstate commerce are affected. Many states have no laws bearing on such containers.

At the present time containers for canned fruits and vegetables hold the limelight. One consumer, testifying at the hearings of the Temporary

National Economic Committee, brought with her 18 cans and 3 bottles of tomato juice all purchased at one store. There were 11 different brands and 17 different sizes which sold at 15 different prices per pound. The price per pound, in most instances, was not easy to determine. What, for example, is the difference in price per pound of tomato juice in 10¼-ounce cans, priced at 2 for 19 cents, and in 12½-ounce cans, priced at 3 for 32 cents? Sizes varied as little as one-sixteenth of an inch and net weight by as little as half an ounce.[49]

Simplification of containers for canned fruits and vegetables has long been under discussion. In 1923 the National Canners Association indicated its "intention to simplify." Various proposals have been made.

In 1940, Simplified Practice Recommendation R155-40[50] recommended that sizes of cans be reduced to 41. Accordingly, tomato juice would be put in containers of 11 different sizes, with 4 cans with contents between 21 and 27 cubic inches. Voluntary action in accordance with this and earlier recommendations had, up to 1941, made no apparent change in business practices. The outbreak of war with Japan brought a shortage of tin. Simplification of containers, especially the elimination of the small sizes using a large amount of tin per volume of product, became mandatory.

In some quarters considerable confusion exists as to the kind of simplification most desirable. A reduction in the number of can sizes to be manufactured for packing all types of canned fruits and vegetables is not so important to consumers as having each food put into containers that are one-quarter, one-half, or three-quarters of a standard measure of weight (pound) or volume (quart), or a multiple of these. If this is done the differences between each container used for any one product would be sufficiently great so that there would be no likelihood of sizes' being confused. With such a relationship between sizes consumers, following simple calculations, could make price comparisons that are meaningful. This is very important if consumers are to buy wisely, if competition is to function so that rewards go to honest, efficient sellers, and if valuable talent is not to be diverted to the deception of consumers. Again and again this fact needs to be emphasized.

If weight in pounds is important, as is true with most canned fruits and vegetables, cans to contain one pound, for example, would need a different volume for the various products.

An attempt is being made to get a federal law requiring mandatory simplification of the type that would facilitate price comparison. The Somers bill

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[49] *Consumers' Guide,* August, 1939, p. 6.

[50] Nat. Bur. Standards, *Cans for Fruits and Vegetables,* 1941.

> provides that dry and solid foods be packaged on a weight basis 1, 2, 4, 8, 12 ounces, 1, 1½ pounds and multiples of 1 pound); liquid and canned foods on a liquid measure basis (1, 2, 4, 8, 12 fluid-ounces, 1, 1½, 2, 3, quarts, 1 gallon and multiples of one gallon). . . .
>
> Interstate shipment of food packaged in nonconforming containers would be prohibited . . . packages containing less than 1 ounce are exempted, as are those complying with Federal standard barrel and standard container acts. . . .[51]

This proposed legislation is sponsored by the National Conference on Weights and Measures.[52]

A step in this direction was taken in 1939 by New York State, where it was ruled that "ices, sherbets and other frozen desserts, sold in quantities of a half-pint or over, must henceforth be packed in containers of 'multiples of the half-pint only.' "[53]

Beginning in 1941, orders from the War Production Board have greatly reduced the number of container sizes. The sizes permitted are not always those which aid consumers most in making price comparisons.

A Program for Less Misrepresentation

A program for less misrepresentation in quantity measures and statements on the label in the sale of food has many aspects. Effective enforcement of the Federal Food, Drug, and Cosmetic Act should come first on the agenda. For this condition to prevail more adequate appropriations are essential. Active participation of consumer groups and more expert testimony at hearings necessary on standards should be promoted. State legislation, checking false statements on labels and requiring important facts to be given, is needed; and better enforcement in some states is of great importance. Better inspection of weights and measures is an improvement long overdue. So also is the continuing variety of containers that interfere with price comparisons.

[51] *Food Field Reporter,* Mar. 30, 1942.

[52] U. S. Dept. Commerce, Nat. Bur. Standards, Misc. Pub. M165, 1940, p. 84.

[53] *Consumers' Guide,* Oct. 1, 1939.

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Grades and Other Quality Information

OVER and beyond the information required in standards of identity consumers may wish other facts about products, especially about variations in quality. Within each class of food important variations in characteristics occur: color, tenderness, crispness, flavor, and freedom from bruises, broken parts, and blemishes. Information concerning these characteristics may be given in different ways. Each characteristic may be separately described: tenderness, for example, as very tender or moderately tender. Or each characteristic may be rated 1, 2, or 3 or A, B, or C. Or a composite measure of one or more characteristics may be used, in which case a rating would be used.

In this chapter several topics will be considered: (1) the function in the various markets of information as to quality; (2) the need to provide consumers with further information as to quality; (3) the development of standard food grades; (4) the resistance to the use of food grades by some business groups; and (5) some issues involved and alternative proposals.

The Nature of Food Grades

In setting up grades for any food it is essential at the outset to select the characteristics to be taken into account in determining the grade. These should have a direct bearing on consumer satisfaction or preference. The characteristics taken into account in the official federal grades for the various canned fruits and vegetables range from 3 to 6 in number. (See Tables 109 and 110.) A grade is a composite measure based on these characteristics.

If the admission of a food to a specified grade depends on the total score assigned to all the characteristics included in the grade, it is necessary to assign a definite amount of the total score to each characteristic. An answer must be given to such questions as the following: Which is more serious in canned pears, poor flavor or poor form; in canned peas, lack of clarity of the liquid or irregularity of size; in butter, mottled color or a slight garlic flavor?

Table 109. Factors Selected and Relative Weight of Each in Official Grades of the Agricultural Marketing Service

VEGETABLES

Products	Grade designation	A. M. S. Factors and Weighting Given Each Factor for Grading									
		Color	Uniformity of size	Consistency	Wholeness	Clearness of liquor	Absence of defects ‡	Maturity	Tenderness and/or texture	Drained weight	Flavor
Asparagus	A – C	15				15	30		40		
Beans, dry	A – C			25			20		30	25	
Beans, lima, canned	A–B–C		15			10	25	50			
Beans, lima, frozen	A–B–C	30					20	50 ‖			
Beans, snap	A–B–C	10 *	10			10	15	35			20
Beets	A – C	20	20				25		35		
Carrots	A – C	20	20				25		35		
Corn, cream-style	A–B–C	5		25	5 ‡		20	25			20
Corn, whole-grain	A–B–C	10			10 ‡		20	35			25
Mushrooms	A – C	30	25 †				25		20		
Okra	A – C	15 *	10			5	20	35			15
Peas, canned	A – C	15 *				20	25	40			
Peas, frozen	A – B	30					20	50 ‖			
Peas, blackeye	A – C	25	10			15	25	25			
Pimentos	A – C	25	15		20		20		20 ¶		
Pumpkin and squash	A – C	20		20	20 §		20				20
Sauerkraut	A – C	15			15 ‡		10		15 **		45
Spinach	A – C	20					25		40		15
Succotash	A–B–C	*Grades are based on grades of component cream-style corn and lima beans*									
Sweet potatoes	A – C	20 *	10		15		15		20		20
Tomatoes	A–B–C	25			25		25			25	
Tomato catsup	A – C	25		25			25				25
Tomato juice	A – C	30		15			15				40
Tomato pulp	A – C	50					20				30

* Includes "uniformity of color." † Includes "uniformity of size and symmetry." ‡ Includes "cut." § Includes "finish." ‖ Includes "tenderness and maturity." ¶ Includes "firmness." ** Includes "crispness."

Table 110. Factors Selected and Relative Weight of Each in Official Grades of the Agricultural Marketing Service

FRUITS

Products	Grade designation	A. M. S. Factors and Weighting Given Each Factor for Grading									
		Color	Uniformity of size	Uniformity of size and symmetry	Uniformity of symmetry	Consistency	Absence of defects	Finish	Clearness of syrup	Nature of fruit	Flavor
Apples	A – C	25	15				25			35	
Apple juice	A – C	35					35				30
Apple sauce	A – C	20				20	20	20			20
Apricots	A–B–C	25		15			25			35	
Blackberries	A–B–C	25	15				25			35	
Cherries, red, sour, pitted	A – C	25					35			40	
Cherries, sweet	A–B–C	25		20			20			35	
Figs, Kadota	A – B	25		15			25			35	
Fruit cocktail	A – B	20	20				20		20	20	
Grapefruit	A – B*		10				25			40	25
Grapefruit juice	A – C	35					35				30
Lemon juice	A – C	35					35				30
Olives, ripe	A–B–C	15	10		10		10			25	30
Orange juice	A – C	35					35				30
Peaches, yellow cling	A–B–C	20		20			25			35	
Peaches, freestone	A–B–C	25		20			20			35	
Pears	A–B–C	20		15			30			35	
Plums	A–B–C	25		20			20			35	
Red raspberries	A–B–C	25	20				20			35	

* The third quality above substandard is "Broken."

In some foods low quality of any one characteristic may be sufficient to keep a product out of the top grade, superiority in one characteristic not compensating for inferiority in another.[1] For these foods the total score is unimportant. Some official grades of the Agricultural Marketing Service carry stipulations which prevent a product from being graded above the lowest rating of any of the characteristics taken into account.

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[1] In some cases the level of quality of one characteristic tends to vary directly with that of another.

Furthermore, for each of the characteristics included, a decision must be made concerning the score to be given to the various qualities that may occur. If tenderness is to be taken into account in grading, what degree of it will be given all the score assigned to tenderness? How many points will be given for the other degrees of tenderness that may occur? Some of the quality specifications at times are criticized because of their vagueness. Some specifications, for example, require merely that the product be "reasonably" free from defects. This statement, vague to the uninitiated, may have a precise meaning to the trained inspectors, with the result that they always rate identical products in the same way.

In grading, the quality of several characteristics may have to be rated. Sometimes the quality is measured objectively, physical and chemical tests being made. For other foods it is appraised subjectively, judgments being made by experts. There are some people who question whether standards can ever be satisfactory if the only testing methods possible are subjective. Everyone will agree that objective tests of quality in every instance should be sought. When they cannot be found, the use of subjective rating should not be excluded if the characteristic which is appraised is important to consumers and even a crude separation of various qualities can be made. Those who object to the use of subjective appraisal appear to overlook the fact that this method for a good many years has had an important place in sanitary milk codes. Furthermore, in grading butter, 45 out of the 100 points are assigned to flavor, which is rated by tasting and smelling. Other characteristics taken into account in butter grading require subjective testing. An abandonment of butter grading would probably bring widespread disorganization in the butter market.

The test of reliability in rating a characteristic lies in consistency. Do all inspectors rate a given product in the same way and does any one inspector rate it the same at all times? For this to occur, where subjective methods are used, two conditions must be met. In the first place, an agreement must be reached concerning the flavor or flavors, for example, which get the full score, that is, those which are completely acceptable, and decisions must be reached concerning deductions to be made for each off-flavor which is likely to be encountered. The second condition necessary is the provision of inspectors who have sufficient keenness of taste and smell (if flavor is being appraised) to identify the various flavors which are to be taken into account and who are thoroughly familiar with the decisions reached concerning the rating of flavors. Experience with butter would indicate that both things are possible, even though they are not yet fully accomplished in the grading of some foods for which subjective testing is necessary.

Better food grading calls for a more complete analysis of various foods from the standpoint of consumers' preference, in order to determine what characteristics are important, and should be taken into account in setting up a grading system and for further effort in setting up precise specifications on the basis of which products are to be appraised. In addition, continued search needs to be made to discover objective tests that will differentiate among the various qualities. Standards and procedures in many cases are recognized as being far from perfect. Systematic and sympathetic criticism at many points is highly desirable as well as freedom to experiment.

Function of Food Grades in Local, Central, and Wholesale Markets

In wholesale transactions, purchase by type and quality rather than by inspection saves time. This is especially true if buyers and sellers are at great distances from each other. Traveling as well as inspection time may be saved. Assurance that quality is as stated may also reduce the time spent in bargaining about price. One canner in his selling found, for example, that with the use of official grades "Buyers haggle less on the price of foods . . . so canners do not have to lower quality to meet a price."[2]

The use of an official inspector and the description of the product by him in many markets reduces the number of inspections necessary for any one food—one inspection is adequate for all buyers.

Grading and the provision of information about products in standard terms hold several additional possibilities of reducing costs. In local, central, and wholesale markets grading serves the important function of helping buyers and sellers relate demand and supply. Without it, market news would be of little value. Grading serves to reduce transportation costs of low-quality products that would spoil before reaching their destination or would not sell there for enough to cover cost of transportation and handling. These products are sorted before being shipped. In many cases buyers want a specified quality. If ungraded products are purchased it may be necessary to sort, resell, or discard the ungraded qualities. It may be cheaper to have such sorting centralized than to have it done by the separate buyers. The risks of financing and warehousing is considerably less for many graded than for ungraded products.

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[2] *Food Industries,* May, 1941, p. 49. See also Ill. Agr. Exp. Sta. Bul. 479, 1941.

Function of Information to Consumers as to Type and Quality

Information is the basis of intelligent action. It is especially important for consumers for those foods which cannot be inspected, for example, canned foods, eggs, butter, and for those foods for which consumers' competence in appraising quality is low, even though the food can be examined in the store. This is true for meat.

If facts are known, consumers are able to select the quality desired for any given use and to decide which product is the most economical in view of price. If consumers can distinguish readily the relative merits of various foods available, consumer education will be greatly facilitated.

The use of information about a food, when it permeates the entire market system from consumer to producer, is likely to have an important bearing on production. When quality is easily recognized, consumers can indicate their relative preference for the various qualities. Greater preference for one in contrast with another will be reflected in a willingness to pay a higher price. This may serve as an inducement to a retailer to increase the volume of the qualities preferred by his customers. Demand, when reflected back to farmers, serves to regulate the production of the various qualities and care in their handling in the market in accordance with their cost and consumers' willingness to pay for them.

Furthermore, if facts about the product are plainly stated, there might be less effort devoted to dressing up products and trying to create an impression of quality with the kind of packaging used. Less high-grade talent would go to searching for novel ways of persuading consumers through advertising and other means that a mediocre food is superior.

Is More Information Needed?

Some people insist that the market provides all the information that consumers need. With foods which cannot be inspected in the store, they maintain that consumers can get sufficient guidance from brand name, the price which is charged for the food, and the information required by the Food and Drug Administration as to the identity of the product and reasonable standard of quality. Brief comments will be sufficient to indicate the inadequate nature of brand name and price as guides to quality.

High price is likely to be associated with high quality only if consumers are provided with means, apart from price, of recognizing relative quality. Numerous studies have shown that high prices and high quality often do not go together.

A major defect of brands is that they provide no means of making comparisons between the quality of the brands which have not been used. In 1940, 215 brands of canned peas, 142 brands of coffee, and 130 brands of macaroni were reported being used by Milwaukee consumers.[3] Experience through use is not a very effective means of getting acquainted with the alternatives available in this market.

To the extent that the quality of a brand is held constant, its existence helps consumers to repeat a satisfactory purchase and to avoid an unsatisfactory one. Extent of variability of quality of various food brands has been studied to a limited extent. One study of eggs reports:[4]

> Within each brand the quality and weight varied as widely in relation to price as was true of the unbranded eggs.

The investigation concludes:[5]

> Branding of eggs does not constitute a guarantee of quality or of uniformity, nor is there any assurance that the brand will be worth the price paid.

Another report states that[6]

> the quality of butter offered in retail stores in New York City and Chicago . . . showed that consumers who wish to obtain 92 score or 93 score butter will find it more often if they buy butter packaged with certificates of quality rather than if they buy on the basis of advertisements printed on the package.

In an Illinois study retailers were questioned about the dependability of quality of beef graded by the Agricultural Marketing Service and of branded beef. The quality of beef, unlike eggs, changes little, if at all, after reaching the retail store:[7]

> The replies of the Chicago retailers to this question made clear that they thought Government grading of beef was a more dependable index of the quality of beef than were packer brands. Nearly 69 percent said Government grading was dependable, and only 3 percent said it was not. Only 17 percent said packer grading was dependable, 40 percent saying it was not. . . .
>
> The same packer brand was often attached to a lower quality of beef downstate than in Chicago. . . .
>
> Many dealers commented on the fact that the quality of a given brand tends to be lowered and raised as the available supply for the

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[3] *1940 Consumer Analysis of the Greater Milwaukee Market.*

[4] *Mass. Agr.* Exp. Sta. Bul. 282, 1932.

[5] *Ibid.*

[6] Temporary National Economic Committee, Mono. 24, p. 19.

[7] Ill. Agr. Exp. Sta. 479, 1941, p. 355.

> brand varies. Some packers insist that . . . the best beef available should be given the top brand even though the quality of such beef is little or no better than would carry the second brand under other conditions.

The inadequacy of brands as a guide to quality is strikingly brought out by the practices of many processors. Swift and Co., for example, sells hams, identical in quality, under both the first- and second-grade labels.

When one examines the publications of the organizations usually included in the consumer movement, there seems to be little doubt that more information for consumers about quality of food is thought to be of the utmost importance. Dameron, after analyzing 886 consumer group meetings of local, regional, and national character, concludes that there is no decline in the interest in informative labeling by organized consumer interest.[8]

Organized consumer groups at times request retailers to provide more information. In Decatur, Illinois, meat markets at the request of a consumer group began to handle graded beef.[9]

A few attempts have been made through questioning consumers to discover their interest in additional information. The National Canners Association reports that 85 per cent of the 7,500 women questioned stated that they had no difficulty in selecting a satisfactory quality of canned fruit and vegetables.[10] In spite of the fact that their replies would indicate that they were unaware that important information was commonly missing, more than half of these women (when asked specifically about standard grades) expressed the belief that grade labeling would make their selection easier. Both the Gallup and Fortune polls have shown a very widespread interest in grade labeling. In many cases the persons questioned had a very inadequate conception of what grade labeling involved, but the surveys do indicate a frequent sense of dissatisfaction with the means of selecting many foods.

The program of the Agricultural Marketing Service, to extend the use of grade labels, includes an attempt "to learn the reaction of consumers and to determine the value of the service to canners as a means of stimulating distribution. It is planned to make surveys in 75 to 100 large retail markets scattered throughout the United States during the early months of 1941."[11] At selected retail stores "consumers who purchase government grade-labeled canned foods will be handed a questionnaire. Through the information obtained from these questionnaires, as well as from other sources, the Service hoped to determine the kind of canned food products consumers buy, and whether the housewife was satisfied with the quality of the government-graded canned products and would purchase them again."[12]

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[8] Committee on Consumer Relations in Advertising, Inc. Released July 2, 1941.

[9] Ill. Agr. Exp. Sta. Bul. 479, p. 374.

[10] See Report to the National Canners Association, by Elmer Roper, *A Study of Certain Attitudes of Women toward Canned Fruits and Vegetables,* 1941, p. 4.

[11] A. Edwards, "Continuous Inspection and U. S. Labeled Canned Foods," *J. H. Ec.,* January, 1941, pp. 31–2.

Development of Standard Food Grading

Food grades were first used in the large central and wholesale markets. Mandatory grading of wheat has occurred since 1916. Since that time official wholesale grades, for most agricultural products, have come into use.[13] The Commodity Exchange Act of 1936 requires the use of standard grades for butter in all trading in futures. Buying and selling in terms of official grades, for the most part done voluntarily, is widespread in the large markets. Food grades are, however, used much less in local markets and retail stores.

Their absence in local markets is accounted for partly by the small volume of the product assembled by any one dealer or in any one community, too small to utilize the time of a competent inspector to do the grading. Hard-surfaced roads and trucking have increased the volume of the product assembled at any one point, and hence the feasibility of local grading. Established patterns of buying, selling, and handling some foods at times interfere with grading's being introduced.

In recent years more and more is being said about the desirability of having consumers better informed. The attempt made to include multiple (A–B–C) grade labeling of canned fruits and vegetables in the Federal Food, Drug, and Cosmetic Act was not successful. This act does, however, through standards of identity, require a good deal of information to be provided on labels. In addition, foods are separated into two groups: those of reasonable standard of quality and above, and those below a reasonable standard of quality.[14]

Some states require that some food products be sold to consumers with an accurate statement given as to grade. Ten states require that eggs be graded. For the most part, these grades are based on U. S. Standards.[15] Some cities have milk grades—the value of which to consumers is held by many to be dubious. Seattle has compulsory meat grading. A bill to require meat grading in New York City failed to pass in 1941. North Dakota requires the grade labeling of canned fruits and vegetables. A similar law has been in operation in Canada for 15 years.

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[12] Am. Home Econ. Ass., *Consumer Education Service Newsletter*, Series 5, No. 2, February, 1941.

[13] See, for example, U. S. Dept. Lab. Consumers' Project, *Analysis of United States and State Standards for Fresh Fruits and Vegetables and Legal Standards for Dairy Products*, 1937.

[14] See Chapter 25.

[15] *A Brief on State Egg Legislation in the United States* (mimeo. report), Ia. Agr. Ext. Ser., 1941.

The interest in multiple grades for many foods continues. Where official grades are voluntarily used, the grading is described as permissive. Its importance obviously depends on the availability of official grades and inspectors to do the grading.

Authority to establish standards for fruits and vegetables was given by Congress to the U. S. Department of Agriculture, largely in response to demands of dealers in canned foods and of consumer groups. Under authorization which became effective during 1931, the department through the Bureau of Agricultural Economics began to formulate retail grades. In 1939 this work was organized under the Agricultural Marketing Service, later the Agricultural Marketing Administration. Multiple grades, seldom more than four, have been established for 43 canned and frozen fruits and vegetables. (See Tables 109 and 110.) In addition, the inspection service has been considerably expanded.

Official Grades in Large Measure Grow Out of Market Practices

> Botanists, men who are familiar with the scientific side of fruits and vegetables, are consulted first. Then farmers, dealers, and canners are requested to express an opinion. The preferences and prejudices of consumers are taken into account. With the evidence all in, the grades are set up in tentative form. The tentative grades allow for a testing period in order that any defects brought to light can be corrected and the grades strengthened. At the end of the testing and revision period the grades are officially promulgated for permissive use. In the formulation of such standards, the Department of Agriculture has merely functioned as a research agency.
>
> The grades, once established, describe within rather narrow limits the respective segments of the quality scale. But being permissive, the grades as finally promulgated must also be compatible with the needs of canners, distributors, and consumers or they will be rejected at once as unusable.[16]

Numerous market studies are being made, notably by agricultural experiment stations and the Farm Credit Administration in connection with cooperative marketing programs, to discover consumers' like and dislikes with respect to a certain food, their attitude toward existing or feasible grades, the cost of grading, the market in which grading is most desirable, and many related questions.[17]

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[16] *Marketing Activities,* Vol. 3, No. 6, pp. 7–8. (Publication of Agricultural Marketing Service.)

The establishment of official grades and the grading are carried on by the Agricultural Marketing Administration. The Food and Drug Administration, now a part of the Federal Security Agency, has, however, the authority to require that the product conform to the official standard.[18] Thus the machinery for enforcing official grades exists as well as the official standards and inspectors.

Permissive Retail Food Grading Develops

When official grades are voluntarily used, the grading is described as permissive. Misrepresentation is involved, of course, unless the product conforms to the official standard. The grading may be done by the firm processing or handling the product or by official inspectors. An important advance in the grading of canned fruits and vegetables was made in 1941, when the Agricultural Marketing Service of the U. S. Department of Agriculture entered into a formal arrangement with 17 canning plants to provide continuous inspection of their products, the expense of inspection being paid by the firms. At that time standard grades had been set up for 23 canned vegetables and 19 canned fruits.

Foods are being labeled

U. S. Grade A (Fancy)
U. S. Grade B (Extra Standard or Choice)
U. S. Grade C (Standard).

The labels also bear a shield with the statement "Packed under the continuous inspection of Agricultural Marketing Administration of the U. S. Dept. of Agriculture." On the label consumers are notified that the grade is officially correct. The designation "U. S." may be used only for food packed under continuous inspection. Before the end of 1941, requests for expansion of the service had been made by 200 additional canners, most of them operating on a small scale. The editor of *Food Industries* writes:[19]

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[17] Cost studies include R. I. Agr. Exp. Sta. Bul. 249, 1935; and Ind. Agr. Exp. Sta. Bul. 328, 334, 336, 418.

[18] A recent step taken by the Food and Drug Administration to check the use of official grades has already been discussed in Chapter 25. It is also possible that the Federal Trade Commission, under its authority to check unfair competition, may take action with respect to grade labeling.

[19] May, 1941, pp. 4–5. This number contains a discussion of experience of the plants under continuous inspection. See also U. S. Dept. Agr., Misc. Pub. 460, 1941.

> Nothing which has happened in the history of the industry has been of more significance to the whole canning industry, and to the whole food industry for that matter, than the recent development in voluntary plant inspection and certification of U. S. Grades by A. M. S.

In 1927 the first grading of meat was done wherein carcasses were marked by federal inspectors with federal grades. In the calendar year 1940, 651 million pounds of meat, mostly beef, were graded. (This, however, went mostly to hotels, restaurants, and other large-scale buyers.) In 1939, 94 dealers were authorized to use certificates of quality and seals for eggs in cartons. They were used on 9 million dozen. In the same year, 150 firms were authorized to use federal certificates of quality on butter.

Price control, initiated in 1942, has brought increased interest in quality grades in order to check up-grading, that is, selling a low quality at the price of a higher quality.

Resistance to Food Grades by Some Business Groups

One or more reasons may be responsible for the resistance to the introduction of food grading by some business groups. Much of it may occur because of ignorance of grading processes. A business man may be keenly aware that the rules proposed would require him to change some of his marketing practices. His feeling that such a change would be to his disadvantage may grow out of a failure to realize that his competitors would also have to change their practices. Resistance may also arise because the new rules have been discussed in the newspapers and in his trade publications as "government interference" with business—a thing business men in general have been taught to dislike. They may fail to see that once the rules are laid down, government action is limited to policing of rules, which if properly drawn are inherently fair to all.

Resistance to the introduction of grading is not confined to retail selling. For example, egg grading in the local markets, an essential if farmers are to be encouraged to improve quality, is resisted in many places because it has been customary for local retailers to buy eggs. Purchase of eggs from farmers is looked upon frequently as an important method of attracting patronage, some stores going so far as to pay farmers more for eggs than they in turn get for eggs sold to egg jobbers. Since the volume of eggs bought by any one store is too small to warrant its having a competent grader, retailers in many rural communities have resisted efforts to introduce egg grading in local markets.

Resistance to retail grades for some products, for example, canned fruits and vegetables, comes from many large-scale processors, who through years of advertising have built up a reputation for their brands, which makes it possible for them to sell at prices somewhat above that secured for similar unadvertised brands. In a few instances dealers have combined to attempt to check the introduction of graded foods. In 1941, the Antitrust Division of the Department of Justice reported that "16 big distributors of food threatened to boycott food brokers who handled canned goods packed and grade labeled under continuous Government inspection." [20]

One argument used against food grades is that they do not provide the kind of information that consumers need. (The controversy pertaining to grades and other types of information is to be considered later in this chapter.) Other arguments against food grades are also presented. For example, the National Canners Association maintains that food grades would lead processors to pack their products so as to make a given grade and no more. Thus, if all products scoring 80 to 90 are rated B, there would be a tendency, so it is held, for no one to plan to pack products scoring from 81 to 90.

Grade labeling in Canada has not resulted in packers' holding quality down to the lower limit of the grade. Some Canadian canners have reported that if a canner aims at a score of 80, he may find his product scoring 79 and thus have it receive a lower grade than he planned. Better control over raw material and processes may occur, of course, enabling a manufacturer to get the exact quality at which he aims.

Objections are frequently made to grading on the grounds that its costs are high. They continue in spite of the evidence from the U. S. Bureau of Agricultural Economics that costs in many cases are very low.

Labels for Canned Fruits and Vegetables Recommended by Two Different Groups

The National Consumer-Retailer Council, whose membership includes the American Association of University Women, the American Home Economics Association, American Retail Federation, National Association of Food Chains, National Better Business Bureaus, and others, has as a major objective the promotion of informative labeling. Its labeling committee has formulated recommended labels for many staple products. It promotes the formation of local groups to carry on educational work, hoping thereby to speed the introduction of labels and their intelligent use by consumers. In addition local groups, it is hoped, will provide information of consumers' reaction to labels.

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[20] *Industrial Standardization*, May, 1941, p. 822. For discussion of continuous government inspection, see p. 522.

Labels for many canned fruits and vegetables have been recommended by the National Consumer-Retailer Council. The following are some of the requirements specified for certain labels: (1) the information required by the Federal Food, Drug, and Cosmetic Act; (2) the grade for the food in terms of A, B, or C, as defined by the U. S. Agricultural Marketing Administration; (3) some interpretation of grade differences; (4) size and/or number of pieces; (5) amount in cups; and (6) density of syrup. Recommended labels are reported to have been adopted by many of the larger food chains.

Recommendations have also been made by the National Canners Association concerning the statements to include on labels of canned fruits and vegetables. Labels recommendation by the two organizations have, for many foods, several features in common. For example, concerning green peas they both state the maturity, the size of can and the net contents, the number of servings, and the size of pea. Labels recommended by the National Consumer-Retailer Council, in addition, give the grade according to Agricultural Marketing Administration standards. The grade takes into account uniformity of color, clearness of liquor, absence of defects, and maturity. Only the last of these is indicated on labels recommended by the National Canners Association. The label of the National Canners Association gives more space than does that of the National Consumer-Retailer Council to suggestions for use. But the so-called descriptive label recommended by the National Canners Association has no reference to 3 out of 4 of the characteristics on which the federal grade is based.[21]

What Kind of Information Serves Consumers' Needs?

The matter of what should be stated or depicted on a label should be viewed in terms of consumer needs. It is important for consumers to be informed about characteristics of a food which differ. Unwholesome foods are or should be barred from the market; so information about wholesomeness usually is not and certainly should not be important. It is to be taken for granted. It has been rather generally assumed that differences in nutritive content of the various lots of tomatoes, for example, are unimportant. Food analyses are, however, revealing important differences in the mineral and vitamin content of many foods which have been assumed to be the same. Therefore it may become desirable to provide information on labels concerning the relative nutritive merits of the various lots of food. Issues bearing on this are likely to receive increasing attention.

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[21] See M. G. Reid, *Consumers and the Market,* 1942, pp. 452–3.

The characteristics of a food likely to affect aesthetic enjoyment are the major ones concerning which consumers now desire information. It is equally true of all foods, including meat, butter, and eggs.

The National Canners Association has argued that food grades are a less satisfactory means of describing foods than a separate description of each important characteristic. When the latter is provided, so it is contended, a consumer can weigh for himself the relative importance of the quality of any one characteristic. Ability to do this may be very important if the relative importance of the divers characteristics varies greatly from one consumer to another—if uniformity of size of pea, for example, is very important to one consumer and not to another, who perhaps rates natural color very high. Description of separate characteristics is also important if consumers vary greatly in what is poor, fair, or good quality in any one characteristic. The National Canners Association points to the fact that it is impossible for mature peas to get into the A or the B grade, even though some consumers rate such peas higher than the immature peas which, when free from certain defects, are admitted to the A and B grades.

Another advantage claimed for description of separate characteristics is that the facts presented are self-explanatory. The qualities of the characteristic, it is pointed out, are described in the every-day vocabulary of consumers; thus consumer education is not required in order to give the terms concrete meaning as is the case when A–B–C grading is used.

This claim contains only an element of truth. A, B, and C grades are likely to suggest "Excellent," "Good," and "Fair." To the extent that the grade specifications are in accordance with consumer preferences, the educational process is simple. When separate characteristics are separately described and differences in them are to be revealed, consumer education will be necessary in order to make known the relative meaning of the terms which are used.

In contrast with the description of separate characteristics, grades have the advantage of being simpler, since they use a symbol in place of three to six descriptive terms or phrases that would be needed if the characteristics taken into account in the grading were separately described. In this connection, it is important again to point out that many of the characteristics important in grading canned peas were not included in the characteristics described on certain labels recommended by the National Canners Association.

Several criteria for evaluating the provision of information for consumers stand out:

1. Any descriptive terms appearing on the labels of products in the same market should have only one meaning. At the present time this is far from being true. For example, the Better Business Bureau of St. Loui

recently reported that out of 275 cans of fruits and vegetables, 31 per cent did not conform in quality to the grade specified on the label.[22] Descriptive terms not included in official regulations are in a state of hopeless confusion, and not all official grade terms are accurately used.

2. The meaning of the descriptive terms should not vary from season to season or from one crop year to another according to the volume of a given quality available. Such a criterion does not, of course, preclude a revision of terms from time to time.

3. Like products should be similarly described. Different terms are used sometimes for identical products in order to separate them into two groups and secure a higher price from those consumers who feel that only the best is acceptable to them. The separation of milk in two grades "A" and "B" in New York City, a practice which was discontinued in 1940, appears to have been largely for this purpose.

4. Terms or symbols which indicate relative merits should reflect consumers' preference.

5. Symbols designed to indicate relative merits should be self-interpreting—A, B, and C grades are thus better than "Fancy," "Choice," and "Standard" grades, for example.

6. Classification of a product should not be any more detailed than is necessary to aid consumers in their selection. One writer comments on reports in newspapers of 25 to 40 grades of eggs. This condition he feels leads to confusion and interferes with grades reflecting consumer preference. He writes:[23]

> The top-grade eggs were way up to the enormous price of sixty or sixty-five cents, while we had other eggs at the bottom of the list worth from sixteen to seventeen cents. . . . I do not think there is anything near that [difference in] value between eggs, even in the mind of the man who is supposed to know what an egg is.

It is undoubtedly true that many grades fail in some of these criteria. Questions arise whether their defects can be corrected so that their advantage can be retained, and whether the advantage of the grade is sufficient to compensate for defects which cannot be eliminated?

Food Grades Reflect Consumers' Preferences

The uninitiated may pass lightly over the statement that food grades should reflect consumers' preferences, since the desirability of that condition in itself is not likely to be questioned. But here is a matter, to which for some foods at least, one may apply the terse phrase, "Easier said than done," especially if a single set of grades is to be used over a wide market. Two questions arise: (1) How to determine what consumers' preferences are? and (2) how to precede when differences in preferences exist?

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[22] "Grade Labeling Survey Shows Amazing Degree of Inaccuracy," *St. Louis Better Business Bureau Bulletin,* May, 1941.

[23] W. F. Jackson, "Technical Standards versus Consumer Preference," *U. S. Egg and Poultry Magazine,* April, 1932, p. 25.

The two main facts to be established in order to have a grade reflect consumers' preferences have already been pointed out: (1) What characteristics of a product are important to consumers and what is high and low quality for each, for example, tenderness in canned fruit may be desired without its being mushy, "good" color, "satisfactory" flavor, uniform pieces may be important? (2) For those products where a scoring system is used and the grading process takes into account several characteristics, what importance shall be attached to each characteristic?

Year after year as consumers select among the various qualities of a food offered for sale, and indicate what they think is good quality by paying higher price for it than they are willing to pay for other qualities, a consensus comes to exist as to what consumers think are the relative merits of various qualities. Since price differences between qualities are less important for the rich than the poor, the quality purchased by the well-to-do is frequently looked upon as top quality. Food grades thus established embody market practices which have evolved over years in a more or less hit-and-miss fashion. All the questions listed above, that is, what characteristics are important, what is high and low quality for each, what is the relative importance of each, are answered in this way.

Tentative grades based on such market practices probably should always be checked by having representative consumers pass on relative merits of foods which have been thus graded.

Are there cases of wide divergence between existing grades and what the majority of consumers prefer? For at least some foods some people will answer, "Yes." With cheese, for example, frequent complaints have been heard that consumers' selection bears no resemblance to existing grades. It may be that the grades have no relation to the preferences of 90 per cent of the consumers. Connoisseurs with highly cultivated palates for cheese flavors may have established certain cheese-grade specifications, using their judgment of what was high-grade cheese without much thought of what typical consumers wanted in the various types of cheese.

At times attempts are made to discover consumers' preferences by asking them to state what they look for when selecting a food. When this method is used it is highly important that consumers be questioned about only one food at a time. Even when this is done, the method has defects. Study after study has shown that consumers are very inarticulate about their preferences. Confronted with actual choices of a product in the form in which they are accustomed to appraise it, they are in a better position to indicate which of two qualities is preferred. It would be more difficult for them to array in order of importance as many as four qualities, for example, maturity, tenderness, flavor, and color of liquid. (See Chapter 10.)

Recently the National Canners Association made a house-to-house survey, in which many housewives were asked to state what things were considered in deciding what canned peas were best. Only 18 per cent of the women replying reported that they would consider tenderness.[24] Yet if these same women were confronted with two samples of peas differing considerably in tenderness, a very different response would undoubtedly have been secured.

The study of preferences with respect to characteristics which are taken into account in grading a food is far from simple. Responses may be influenced in many ways so that the conclusions are very faulty. The interviewer, by the way he turns his question or phrases his instructions or by the inflection of his voice, may affect the response he gets.

When samples are used, the range of quality and their arrangement may in itself affect preference expressed for any one. For example, a group of women was asked to indicate, by numbering 1, 2, 3, 4, their relative preference for five egg-yolk colors. The yolk next to the darkest in color got first place. The following day a similar group of women was asked to indicate their preferences for yolk colors. The yolk colors on the second day included, however, an additional yolk that was darker than any that had been included on the previous day. On the second day first place again went to the yolk next to the darkest in color. This was not the yolk color which got first place the previous day, even though a color identical with that previously getting first place was included in the display. With the darker yolk present, the degree of color that was most acceptable had shifted to a darker color.[25]

Among the complaints made that grades do not reflect consumers' preference is that of egg producers from the Middle West, who hold that the New York egg-grading system discriminates against the eggs from their region because of dark yolks resulting from the type of feed used. They point out that inspectors rate higher the eggs with lighter yolks from the Pacific area and nearby producers in the East, even though the eggs from the two regions are equally fresh and equally acceptable to consumers. A study conducted purported to demonstrate that New York City consumers had no aversion to egg yolks dark in color.[26]

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[24] Report to the National Canners Association by Elmo Roper, *A Study of Certain Attitudes of Women toward Canned Fruits and Vegetables,* 1941.

[25] Unpublished study at Ia. State Coll.

[26] Mo. Agr. Exp. Sta. Bul. 329, 1933. Some people might question the conclusions. A display of only three yolk colors was used. Of the consumers questioned more favored the light yolk than favored any other color.

This divergence between consumers' preference and the qualities of eggs as graded grows in part out of the difficulty of inspection. The best candling methods yet devised give an incomplete picture of an egg's interior. The yolk of a "poor" egg has a higher yolk visibility than that of a "good" egg. Yet a "good" egg with a darker yolk is more visible than a good egg with a light yolk, and consequently tends to be graded down because of its accidental resemblance to a "poor" egg.

Some egg-grade specifications exclude from top grades those eggs having a tremulous air cell. Specialists agree, however, that a tremulous air cell can exist without affecting the qualities consumers desire in an egg. Exclusion from the top grade of eggs with a tremulous air cell pleases local producers whose eggs do not have far to travel. Its inclusion in the top-grade specifications may have been due entirely to economic pressure rather than to any inherent inspection difficulty.

Preferences vary somewhat from family to family and often markedly from region to region; a uniform grading system especially for the country as a whole is bound at the outset to run counter to the preferences of some. There is the question of whose preferences should be accepted as the basis of the grading. The greatest influence is likely to be exercised by the preferences shown in the main consuming market. It may or may not include the majority of the consumers. Since New York City is the largest single market for food products, it seems highly probable that preferences expressed there have a more important relation to grades than those of any other market.

Uniform grades meet objections from some producers because of fear that such grades will reduce demand for their product. In some cases their fears are well founded. Preferences for butter, for example, may be such that flavor "P" may be rated very low by some consumers and accepted as very satisfactory by another. Flavor has considerable weight in federal butter grades. If the flavor standard for high-grade butter rates flavor "P" low, and a low-grade label appears on packages of butter having this flavor, consumers who had formerly found it very unsatisfactory will begin to question its desirability. Many of them are likely to question their former judgment and to form a preference pattern more nearly in accordance with the grade rating. They come to consider high grade what they are told is high grade. Grades are thus not always neutral ratings reflecting consumer preferences. They may also be factors helping to shape the preferences of some. Producer groups may accept a grading system if it is in accordance with consumer preference for their product but resist it if they feel that it may turn consumers against a product previously found acceptable. Many students of marketing feel that the all-over advantage of uniform grading in intermarket relationships outweighs disadvantages to local groups, the demand for whose product is reduced by the change in its description.

There is undoubtedly great need for further study of consumers' preferences in order to select the characteristics to be described separately and those which might well be combined into grades, to determine what importance should be attached to those characteristics which are combined in a grading system and what are the relative merits of different qualities of any one characteristic. In addition, there is the need of discovering ways of testing or measuring the quality of separate characteristics so that grading in accordance with consumers' preference is possible.

Attention should also be given to the place or places in the marketing process where grading should occur. Such study would naturally raise the question of changes which occur in the grade of a product as it moves through the market and of ways of checking deterioration.

Food Grades Affect Consumers' Preferences

Some people have contended that a separation of a food into grades, very plainly stating that all the product is not the best, that some are distinctly low grade, will cause the market for low-grade quality to disappear. Anyone who contends this point must be deluded into thinking that consumers, in the absence of grading, fail to recognize that quality differences exist. A market for low-grade food would continue. Rasmussen reports an outstanding club woman as saying:[27]

> A mistaken idea is that women always want the best. . . . Consumers want to be assured of wholesomeness and safety. The best is reserved for company or special occasions.

There are some, however, who claim that if consumers were assured when they buy that they were securing a specified quality, their consumption would increase. Effects of grading on quantity of foods consumed has not been systematically studied.

There is considerable reason for believing that increased assurance that the quality was as stated would reduce consumer dissatisfaction for some products and increase their consumption.

Mandatory versus Voluntary Grade Labeling

There is also the question of how better labels are to be introduced. It seems highly desirable that for some time experimentation should continue with the various types of labeling being tried and that standardization of terminology used for all labels should be promoted.

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[27] M. P. Rasmussen, "Consumers' Incomes and Demand for Certain Perishable Farm Products," *J. Farm Econ.*, February, 1939, p. 146.

Food Industries, in commenting on the recent study by the National Canners Association, *A Study of Certain Attitudes of Women toward Canned Fruits and Vegetables,* states:[28]

> In general, the report seems to make out a pretty good case for descriptive labels versus "grade" labels. Yet it fails to distinguish between the common or garden variety of grades A, B, and C, and U. S. grades A. B. C. This, however, is a minor comment, for neither are yet in sufficient widespread use to be important factors in consumer buying.

The editor goes on to state:

> If anyone decides from our comments that we are actually campaigning for U. S. Grading or are opposed to descriptive labeling, he is mistaken. *Food Industries* believe in adequate labeling by whatever system experience proves best. . . . We also believe that as long as the choice of the system of labeling is on the permissive status, rather than mandatory, the experience of the next ten years will automatically attract food manufacturers to the method best suited to the needs of the public. . . .

Bader and Hotchkiss made an investigation of the attitude to grade labeling of teachers of marketing in departments of economics and schools of business in the United States, in which 84 usable questionnaires were secured.[29] One question asked: "What is your present attitude toward mandatory ABC grade labeling?" The great bulk of those reporting were not prepared to take a decided stand for or against mandatory labeling. It is of interest that a much larger number gave qualified approval than qualified disapproval.

Options	*Number of Responses*
1. Unqualified approval	8
2. Qualified approval	53
3. Qualified disapproval	14
4. Unqualified disapproval	10

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[28] September, 1941, pp. 37–8.

[29] L. Bader and G. B. Hotchkiss, "Attitudes of Teachers of Marketing toward Consumer Grade Labeling," *J. Marketing*, January, 1942, pp. 274–80.

Official Grades as Interstate Trade Barriers[30]

Some grades are set up or descriptive terms are required to discriminate against products raised outside the state. This, in several states, is true for eggs.

Lack of uniformity in grade specifications, markings, and type required and in size of container may be used to hinder shipments. Reinspection of products is sometimes required and a fee charged even though the products already have been inspected and marked according to federal requirements.

The shipment of grades below a specified minimum from entering or leaving the state may be forbidden. Forbidding shipment outside the state below a specified grade is likely to be important if the growers in the state provide a large enough part of the entire supply so that they have an appreciable effect on price by withholding part of their supply from the market. The lowest grade may be left to rot. This practice probably affects the consumption of low-income families more than that of any other group. The practice of forbidding shipment of the lowest grade has some merit so far as it serves as a corrective to the practices of careless or uniformed shippers who fail to count the additional cost of shipping the low-grade products which spoil.

Much of the lack of uniformity in grades of perishable products is due to the fact that they have been developed on a local basis. With the introduction of rapid refrigerated transportation, local areas recently for the first time began selling their products in distant markets. Many took the initiative in establishing their own grades. Of them Wells writes:[31]

> Local pride and jealousies did much to retard real progress. . . . There was prevalent the idea that it was a fine thing for a community or organization to have a distinctive brand and a separate and strictly local standard. . . .

With the passage of years, local standards for the most part have given way to state standards, many of which are based on federal standards. In a few cases groups of states have cooperated to develop regional standards, for example, those for fresh fruits and vegetables in the New England region. It seems highly probable that as time goes on increased uniformity of wholesale standards will occur as localities become more fully aware of the national character of the market of which they are a part.

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[30] For extensive discussion of this issue see *Barriers to Internal Trade of Farm Products, op. cit.*, pp. 68–84, and W.P.A., *Barriers to Trade Between States*, Marketing Laws Survey, 1939, especially pp. 48–54.

[31] A. S. Wells, *Merchandising Fruits and Vegetables*, 1928, pp. 178–9.

Interstate trade barriers are partly accidental in that the restraint arises from local standards set prior to the development of federal standards. Some regulations passed during the 1930's were, however, deliberately designed to restrain trade, the purpose motivating them being the protection of some producer group.

Since 1939 the Council of State Government has focused attention on ways of checking the spread of various kinds of interstate trade barriers. So far little has been done to reduce them.

A Program of More and Better Information

To hasten the improvement of quality information, investigations of many types are necessary. Issues to be studied include: (*a*) characteristics of various foods for which information should be provided; (*b*) consumers' ratings of the various qualities of many foods; (*c*) methods of measuring the quality of the various characteristics; (*d*) place in the market system at which it is best to do the grading; (*e*) changes in the market organization necessary to facilitate grading; (*f*) the effect of grading and increased information on marketing costs, returns to farmers, quality of products made available, and consumption.

The time necessary to discover needs, to educate a group large enough to ensure action, to develop new techniques of measurement, to make adjustments in marketing machinery, slows up the process of setting grade standards and of securing standard terms and putting them into use. Many developments of recent years both by industry and government agencies and the increasing power and prestige of consumer groups who promote informative labeling suggest that some improvement in food labeling is certain.

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Reducing Marketing Costs

FOOD marketing costs are a matter of major concern to both consumers and farmers. The former see them as charges that make the cost of food high; the latter as charges that reduce their share of the dollars spent by consumers. Because marketing costs are very inflexible, the dollar charge made by market agents declined relatively little with the fall in food prices from 1929 to 1932. As a result, during this period farm prices fell a great deal and a great hue and cry arose concerning high marketing costs.

Food Marketing Costs Are High

Much has been written about marketing costs' being high. In 1940 only 42 cents out of every dollar spent by consumers for food went to farmers, the other 58 cents going to those engaged in distributing and processing food.[1] The farmer's share of the consumer's dollars for a wide variety of foods in 1940 is shown in Pictogram 9.

Not only are marketing costs high but they have been increasing. Hoffman and Waugh, of the U. S. Bureau of Agricultural Economics, report that the farmer got 55 cents out of the consumer's dollar from 1913 to 1917, 43 cents from 1928 to 1932, and 40 cents in 1938.[2]

The share of the consumer's dollar going to processors and distributors is affected by many things. One must beware of concluding without further evidence that this trend indicates that marketing has become relatively less efficient or that profits are unduly high.

Among other things it is important to realize that marketing and production costs are interdependent. Regional specialization as well as mass production has increased the distance between producers and consumers. They have thus increased the distance products must be transported and, for some products, the number of buyers and sellers who take part in marketing. Lowered costs of production for some foods have necessitated an increase in marketing costs. The total cost of the product, and not just the marketing cost, is the thing which actually concerns consumers.

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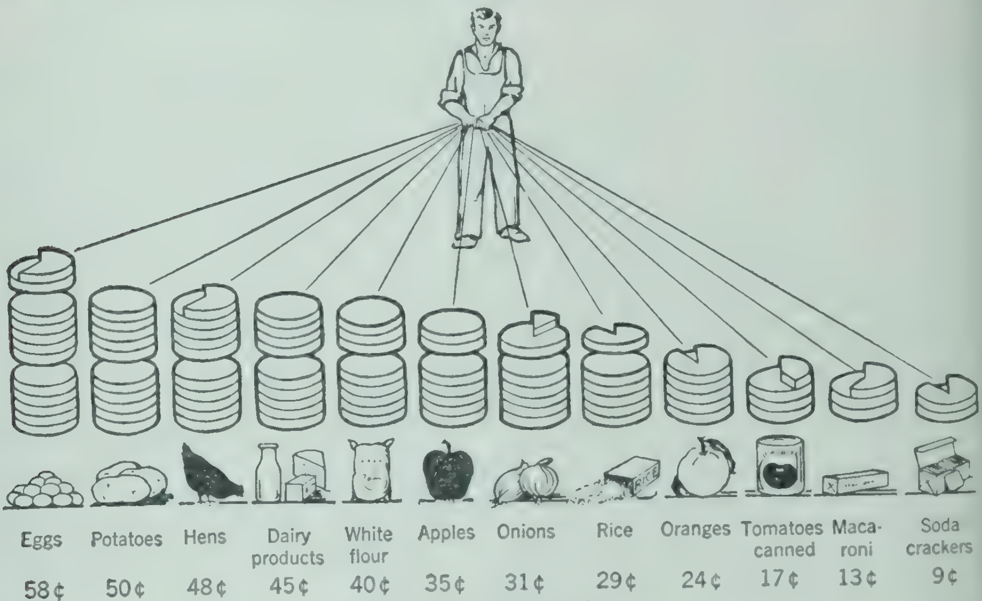
[1] U. S. Bur. Agr. Econ., *Price Spreads between the Farmer and Consumer* (mimeo.), 1941.

[2] *1940 Yearbook of Agriculture*, p. 628.

Marketing costs are influenced by characteristics of commodities, conditions under which they are produced and handled, and services demanded by consumers. Among other changes, average size of purchase has declined greatly. The nearby grocery serves as the family storeroom. A larger proportion of the foods now purchased not only travels further but also requires more care in handling. Breads, cakes, pies, and cream puffs now may travel several hundred miles, and fruits and vegetables several thousand. Speed and care in handling, including refrigeration in transport and in stores, may be necessary. An increased proportion of the food handled is perishable. In spite of care, spoilage may be high. For example, one estimate places average anticipated spoilage of both peaches and cabbages at 24 per cent, grapes at 15 per cent, lettuce at 14 per cent, oranges at 7 per cent and potatoes at 2.5 per cent.[3] Perishable foods have constituted an increasing proportion of the total food marketed.



Bureau of Argicultural Economics

PICTOGRAM 9.

Farmer's Share of the Consumer's Dollar for Selected Food Products, 1940.

The wide differences among foods in the farmers' share of retail price are primarily due to differences in degree of processing and quantities of other marketing services required to transfer each food from farmers to consumers.

Hoffman and Waugh,[4] in discussing trends in marketing costs, point out that "Hourly wage rates [of employed workers in marketing] have more than doubled during the last 25 years." They consider this change the chief explanation of widening food margins. In general, they find no increase in rate of return to capital. They point out that "the notion is not infrequently held that exorbitant profits are largely responsible for the present width of this spread and that the solution is merely to force middlemen to disgorge their profits." They believe, however, that the solution is not so simple as this for "the total marketing spreads would not be greatly reduced even by the complete elimination of all earnings to capital invested in food enterprise." [5] For some foods, however, "profits" of even one firm may constitute an important part of the consumer's dollar. For example:

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[3] *Does Distribution Cost Too Much?* p. 28.

[4] *Op. cit.*, p. 629.

> In 1939 the profits of the two largest can manufacturers were both in excess of 9 per cent of their sales. . . . Since the cost of the can constitutes an appreciable part of the prices of all low-priced canned goods, profits of this amount may contribute appreciably to the difference between the farm and the retail price of the canned article.
>
> Thus on a No. 2 can of tomatoes selling for 8 cents, 24 cents out of every consumer's dollar is represented by the cost of the can to the canner. If we assume can manufacturer's profits at 9 per cent of sales, this means that 2 cents of the consumer's dollar spent for these tomatoes goes to the can manufacturer as profit.[6]

Among can manufacturers there is a good deal of restraint on trade. (See Chapter 28.)

Are Marketing Costs Too High?

Marketing costs of food are too high if a more economical way can be found to carry on necessary functions. Complaints concerning marketing costs are of several different types.

1. That inefficient methods are used.
2. That duplication of facilities exists.
3. That some people, through combinations in restraints of trade, exact relatively high profits or bring unnecessary costs.
4. That more services are given than are necessary.

Defects of these types are to be found in all markets through which foods move—local, wholesale, and retail. The existence of restraints on trade will be considered in the chapter that follows. In this chapter attention will be given to some suggestions concerning inefficient methods, duplication, and unnecessary services.

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[5] *Ibid.*, p. 630.

[6] T.N.E.C., *Agriculture in the National Economy*, Mono. 23, 1940, pp. 23–4.

Before beginning to note places in the marketing process where improvement might be made, it would be well to point out that unnecessarily high costs are not peculiar to marketing. Inefficiency is a trait of people in all occupations. Lower prices to consumers would be possible if inefficiencies in production on farms and in factories were reduced. Furthermore, when one comes to make suggestions for improvement, it is important to realize that marketing has not been entirely static, that each year has brought some improvement in methods used, in marketing as well as in production. The introduction of less efficient methods has also occurred.

In the matter of marketing efficiency, Hoffman and Waugh believe that "there is some evidence that food distribution is becoming more, rather than less, efficient . . . Food margins have not increased in proportion to the increase in hourly wage rates despite the fact that consumers are receiving as much in the way of marketing service as they ever did."[7] They doubt, however, whether the all-over efficiency of marketing which is feasible has so far been achieved.

Improving Methods of Marketing

The economic system is dynamic. Progress toward efficient methods is a goal which must be sought continually, for there is no one best method, no combination of agencies and processes that would be the most efficient for any length of time. If, by chance, at any time an ideal marketing process could be achieved in which there was no waste and inefficiency, it would soon become outmoded, as human ingenuity devised better methods. The introduction of these might necessitate far-reaching changes. It is thus very important that flexibility and freedom to experiment, to introduce better methods, should be preserved. Change is vital, even though some people cling to past ways of doing things and want to continue as they were. They may fight against change, seek ways of protecting themselves against improved methods that would benefit the majority of people in society.

Competition is a major force on which we depend to promote efficiency. At several points restraints have been imposed on competition to protect established producers and market agents. The abolition or modification of some more of them would decrease many marketing costs and lower prices to consumers; at the same time the removal of many of them would also serve to increase prices to farmers and thus encourage a larger output.

Some people are inclined to look at the increasing costs of marketing and at the complex system of middlemen which has evolved and feel that costs would be lowered if middlemen were eliminated, if consumers were able to have more direct contact with producers. Such people may see public markets as the way of lowering food costs. In some communities, a system of public markets undoubtedly has a place in an efficient system, but it is likely to have only a relatively small place in a society that draws its food supplies from distant fields and factories. Elimination of some middlemen may be highly desirable. Business units must find that combination of functions that will lower costs. The best combination is likely to differ from one community to another and from one product to another.

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[7] *Op. cit.*, p. 631.

The analysis of the separate market functions and agencies is beyond the scope of this book.[8] A few concrete suggestions can be made to indicate the changes that at the present time seem to hold the greatest promise in promoting the introduction and increased use of improved methods.

For some foods terminal markets are very inefficient. One study, for example, reports:[9]

> Recent studies of the Bureau of Agricultural Economics show that the wholesale and jobbing markets for perishable agricultural commodities in many of the large cities need to be reorganized. In many of these cities there are too many markets. They are poorly coordinated with one another, and in only a few cities is there anything like adequate provision for the handling of motor truck receipts. If changes were made to correct this situation the cost of city wholesaling and distribution could be substantially reduced and better service could be given to the farmer, to the retailer, and to the consumer.

The Emergency Transportation Act of 1933 gave power to regional coordinating committees "to avoid unnecessary duplication of services and facilities . . . and permit the joint use of terminals." In many cities changes are being made. The Federal Coordinator of Transportation proposed that at Chicago the number of major yards be reduced from 21 to 8, industrial yards from 60 to 18, freight yards from 72 to 12. "Total annual economies of $50,000,000 were believed by the Coordinator's staff to be possible if a thorough policy of terminal unification were put in force."[10] Opposition to these proposals came from certain business groups who fear the loss of special advantages and from railroad labor "inspired by the fear that unification would reduce the number of available jobs."[11] Greater efficiency at terminals is likely to be a question of considerable importance for some time to come.

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[8] For a more extended discussion see M. G. Reid, *Consumers and the Market*, 1942, especially Chapters 10–12 and 30.

[9] William C. Crow, *Wholesale Markets for Fruits and Vegetables in 40 Cities*, U. S. Dept. Agr. Cir. 463, 1938, p. 1.

[10] S. Daggett, *Principles of Inland Transportation*, 1941, p. 545.

[11] *Ibid.*, p. 546.

Better grading and market news are needed. The bearing of grading on costs was examined in Chapter 26. Market news has an important bearing on risks and costs of reshipping and cross hauling. The establishment of standard grades, the provision of inspectors, and market news will probably have to be done by the federal government. With various improvements, purchase by large-scale retailers directly from local markets has been developing, and handling costs have been considerably reduced.

An educational program to introduce and to extend the use of better methods is desirable. Greater importance should be attached to this type of education in vocational schools and colleges, but more of it should be provided for people on the job. Provision of educational materials and short courses is especially important for firms whose scale of operation is small, for example, those in local markets and retailing. Such educational work cannot go far without investigation to uncover the nature and scope of existing inefficiencies and the possibilities of improvement. Both the education and the research might be carried on by federal and state governments or by trade associations. The latter are better developed among retailers than among local buyers.

Reducing Duplication

Are there too many retail stores? Too many wholesalers? Too many buyers of wheat, cattle, and eggs in the local markets? There are many people who promptly answer, "Yes." They point out that costs would be lower if each business operating were to have a larger volume. Where retail stores are concerned, a considerable reduction in number would reduce but little the convenience of consumers. An excess of firms appears to exist in other markets also.

Cooperative enterprise is a major recommendation made for reducing duplication. If consumer and marketing cooperatives are established it would be possible to rely on a single firm without the fear that consumers would be gouged by high prices or that farmers would be exploited by high charges because of the absence of competitors. In cooperative enterprises the profits are distributed to patrons. A major check imposed on the elimination of waste through cooperative enterprise is the difficulty of securing efficient management.

Marketing cooperatives, organized and controlled by producers for some products, for example, citrous fruits and some dairy products, have done a great deal to promote efficiency in carrying on certain marketing activities. The possibilities of increased efficiency through cooperative marketing are as yet far from being fully achieved.

Consumers' cooperatives, for the country as a whole, do not make a very impressive showing. They have, in the past ten years, increased rapidly. In some rural communities, notably in Wisconsin and Northern Minnesota, they are very important. It is probably in rural communities, where the possible number of stores that a community could support is limited, that consumers' cooperatives are at present most important. They are, however, important in the larger cities in Sweden and England.

Reducing Unnecessary Services

What is meant by unnecessary services? To some people it means that consumers are getting something which they do not want, in the sense that they would rather do without the service provided if they could have the savings thus effected in the form of lower prices. Are consumers getting services which they do not want? At the present time they are free to patronize a full-service or a cash-and-carry store. Choice such as this holds in check the provision of unnecessary services. However, consumers' knowledge of relative qualities and prices in the various stores is limited, and their response to slight differences in prices is slow. Anything that makes it easier for consumers to recognize quality and to make comparisons from store to store[12] will aid in restricting the services which they are offered as a substitute for lower prices, as a means of attracting and holding patrons. Furthermore, any rules that interfere with price reduction as a means of attracting patrons, such as resale price maintenance and the prohibition of sales below the cost of the most efficient retailer, will cause an expansion of unnecessary services.

Because consumers are relatively insensitive to minor price differences among stores, a grocer may attempt to attract patrons not just through providing certain free services but by being very liberal with them through giving special deliveries, more generous credit, keeping the store open longer hours. If one grocer does this, other grocers may feel impelled to follow suit. The liberal granting of services is held in check somewhat by agreements among local retailers, thus placing limits on such services. In the sale of milk, to be discussed in Chapter 29, agreements among competitors are used to force a continuation of expensive services that many consumers have shown a willingness to dispense with.

Some people, in discussing unnecessary services, feel that consumers, if they weighed costs more carefully, would decide to buy in larger quantities without elegant packaging and glamorous advertising, that they would carry parcels, buy in shopping districts and thus promote the growth of larger grocery stores by depending less on the grocery around the corner, and make less demands for free services in general. Some change in this direction may be effected by an educational program that increases consumer understanding of marketing costs and causes them to make more systematic comparison of prices between various stores and products.

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[12] See Chapters 25 and 26.

Unnecessary services may be the result of consumers' ignorance concerning indices of quality. On this point one market specialist writes:[13]

> It often happens that beet leaves are ragged and unattractive so that it seems best to clip the tops before the beets are shipped from the South. These fresh clipped beets should carry better than those with the tops attached. They should reach the consumer in better condition, but there is always a sharp discrimination against them.
>
> There is even less justification for the discrimination against topped carrots in favor of bunched carrots. . . .
>
> The present fancy in carrots goes so far as to demand that the tops be left full length and that they be short and feathery—not trimmed or shortened in the process of bunching. Under the very best conditions for rapid growth, carrot tops will grow so long as to require shortening if the desired number of bunches is to be packed in a given container. The fancy is, therefore, in direct conflict with what happens under the best cultural conditions and seems to me irrational and unjustified. . . .
>
> Certainly there is little to be said in defense of our recently developed habit of shipping tens of thousands of carloads of carrots, beets, turnips, radishes, and even parsnips for thousands of miles, paying freight upon countless tons of tops which have no uses and which, if they arrive wilted or decayed are a positive detriment to the product. With the exception of a very few beet leaves, these vegetable tops all go into the garbage can, as do the green stems which surround the head of the cauliflower, and the outer leaves of all cabbage and lettuce. Here it seems to me is an enormous economic waste and one which is growing annually.
>
> All these southern and Pacific Coast vegetables, shipped fresh under refrigeration with tops and green foliage attached, bear a freight rate which, in many cases, represents nearly fifty per cent of the delivered value of the product. It is safe to say that in the case of many of these products about thirty per cent of the bulk, and perhaps fifteen to twenty-five per cent of the weight consists of tops and leaves which finally appear as trimmings. The heavy transportation and icing charges which have been paid on this useless foliage must be recovered in the price of the part of them actually consumed.

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[13] W. A. Sherman, "Food Supplies and Consumer Habits," *U. S. Egg and Poultry Magazine*, January, 1932, pp. 29 and 62.

Total Reduction Possible

Numerous improvements in marketing may be made. No one is in a position to say with any certainty how much saving is possible if the improvements suggested in this chapter were effected. Since marketing is made up of many services, no single change, however small, should be ignored. Most changes take only a very small part of any one dollar spent. An attack on inefficiencies, many of which taken separately seem very unimportant, would have a total effect of considerable magnitude.

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Monopolies and Restraints on Trade

Restraints on freedom of enterprise in providing foods are by no means new. During the Middle Ages many manorial families were forced to grind their grain in the lord's mill and to bake their bread in his oven. The regulations were an important source of revenue for the lord and a matter of considerable grievance to the families who were not allowed to have and use mills and ovens of their own. Existing restraints are of a different kind, but their general effect is the same: They benefit a few at the expense of the many. The many who are affected include, at the one end, consumers who buy the food and, at the other, farmers whose prices are depressed and who tend as a consequence to reduce their production in the long-run.

At the outset it seems desirable briefly to review legislation prohibiting monopolies and restraints on trade, after which legal restraints on trade will be considered; then illegal restraints and the functioning of legislation to check them will be discussed.

Legislation Prohibiting Monopolies and Restraint on Trade

The keystone of federal legislation is the Sherman Antitrust Act of 1890. This act states:

> Every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce among the several states or with foreign nations is hereby declared to be illegal. . . .
>
> Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any person or persons, to monopolize any part of the trade or commerce among the several states, or with foreign countries shall be deemed guilty of a misdemeanor.

Court interpretations of this legislation have been important. Only unreasonable restraints of trade have been declared unlawful, and a large firm, even to the extent of one which constitutes most of the industry, is not considered to violate the act. Collusion among competitors in regard to price or output and coercion to check entrance into an industry, or techniques designed to drive out competitors in order to have a monopoly, are, however, declared to be illegal.

In order to strengthen the control of restraints on trade, the Clayton and Federal Trade Commission Acts were passed in 1914. The Clayton Act specifically declares certain practices to be illegal, for example: (1) price discriminations among various buyers of a commodity; (2) tying contracts obligating a buyer to take, from the same seller, "other" commodities and materials; (3) interlocking directorates; (4) acquisition of more than a limited amount of the stock in another company. The act also states, however, that these things are illegal only if their effect is substantially to lessen competition. Thus little real change in legislation was effected.

The Federal Trade Commission Act established a commission whose main function was to prevent "unfair" trade practices. There was the assumption that many monopolies were the result of unfair trade. To the extent that this was true, an act to prevent unfair trade would in effect prevent the growth of monopolies. Furthermore, it would prevent certain exploitative practices on the part of many large-scale firms. The act did not define unfair trade and the commission very soon found that its meaning was restricted by the courts to what in common law had already been held to be an unfair trade practice. As the years went on it became more and more apparent that the commission could act not in the public interest but only to protect competitors and that it dealt with minor offenses rather than with the major issue of monopolies involving large-scale enterprise.

The National Industrial Recovery Act and certain parts of the Agricultural Adjustment Act represented a partial about-face in attitude to combinations in restraint of trade. These permitted, encouraged and even compelled competitors to agree on policy for the industry as a whole. Codes in many cases embodied restrictions on price competition and on output—the two outstanding characteristics of attempts to monopolize. The N.R.A. experience, although short lived, probably made a deep impression in that it revealed as never before the possibilities, including the dangers, to established firms and to society at large of certain types of joint action by trade associations. The episode seems in general to have strengthened the power of large-scale firms.

The continuing agricultural controls and recent state legislation permitting some restraints which had been authorized in many N.R.A. codes have created greater confusion than ever before concerning public policy in the regulation of monopoly. The editor of the *New York Times,* for example, writes:[1]

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[1] Feb. 4, 1941.

> At a time when one arm of the Federal Government is smashing at trusts and monopolies with unprecedented vigor, another arm establishes an ironclad monopolistic control over the price that 60,000 farmers in six surrounding states receive for milk sold in the New York area.

Legal Restraints on Trade

Some existing restraints on trade are legal; others are not. Several of both types will be considered, with attention being given first to those which are legal [2] and which appear to interfere with maximum efficiency.[3] It has already been pointed out that laws designed to increase efficiency by ensuring healthful products are at times used as a screen for restricting supplies. They are among the restraints whose removal would increase efficiency. A major objection to some of the existing legal restraints on trade is that they have fostered other restraints which are illegal.

Interstate Trade Barriers

Interstate trade barriers vary greatly in type. They increased rapidly during the depression years of the thirties. Several types have already been considered; for example, margarine taxes; state advertising of foods; sanitation laws to check the shipment of milk and other dairy products into certain communities; and grades and inspection laws for fresh fruits and vegetables. Other interstate barriers exist.

Trucking laws of some states have developed a mild form of border warfare, causing delay, expense, and much annoyance. Regulation includes state registration even though a truck visits the state in question very little. Rules concerning maximum load, width of truck, arrangement of lights, etc., have in some places caused much confusion. At times the regulations amount to an embargo on out-of-state trucks. Many truck drivers are arrested on both sides of the state line, and perishable foodstuffs are held up.[4]

Many suggestions have been made for removing trucking restrictions which handicap efficiency. Some states have worked out reciprocal arrangements which eliminate unnecessary friction and expense. It has been suggested that other states take similar action. Of this suggestion Taylor writes:[5]

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[2] Milk-control acts will be considered in Chapter 29 and A.A.A. marketing agreements in Chapter 30. See also Chapters 22 and 24.

[3] Laws requiring minimum sanitation, or prohibiting misrepresentation, or requiring that certain information be given, in the opinion of the author, tend to increase efficiency.

[4] G. R. Taylor *et al.*, *Barriers to Internal Trade in Farm Products*, special report U. S. Dept. Agr., 1939, p. 42.

[5] *Ibid.*, p. 54.

> Past experience has indicated, however, that reciprocity agreements have appreciable weaknesses, not the least of which is that they are likely to break down at any time. Sometimes when this happens a severe border war may result, to be followed possibly by a new reciprocity agreement or, as has not infrequently happened in the past, by the rigorous enforcement of retaliatory legislation. . . .

The special report to the Secretary of Agriculture on the matter concludes that [6]

> In view of the great difficulty of securing uniform State action there is certainly much to be said for a Federal law that would set maximum size and weight of trucks moving in interstate commerce.

Federal subsidy of state highways might be used as a means of getting state cooperation in minimizing the trucking barriers to interstate trade.

Another barrier grows out of the effort to check the spread of animal diseases and insect pests. States have established quarantine laws. Of these Taylor writes:

> State quarantine regulations exhibit the same lack of uniformity from State to State as do the regulations in other fields covered by the present study, such as grading and labeling, motor-trucks, and milk inspection." [7]
>
> Some quarantines can be criticized for requiring unnecessary red tape, delay, or expense; for including free areas within the limits of the area quarantined against; for lacking a sound biological basis; or for violating one or another of the principles that have been suggested as desirable.[8]

There seems to be a fairly widespread agreement with the findings of a California committee that

> Congress . . . enact legislation providing that interstate quarantines promulgated by states be subject to review and possible disapproval by the Federal Secretary of Agriculture. This would prevent retaliatory, unfair, or otherwise unjustifiable state quarantines, which would cause trouble in the future.[9]

The existence of trade barriers are looked upon as a major danger to the American economy. The high level of living achieved in the United States rests on the large volume of free trade among the states. It can be preserved only by guarding it carefully.

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[6] *Ibid.*, p. 56.

[7] *Ibid.*, p. 88; see also Works Progress Administration, the Marketing Laws Survey, *Barriers to Trade between States*, 1939.

[8] *Barriers to Internal Trade in Farm Products, op. cit.*, p. 96.

[9] *Ibid.*, p. 96.

Patent Rights

Patents are important for a few but far from all processed foods. An important patent affecting processed cheese has recently expired. Most of the important patents in the evaporated-milk industry have also expired. There are several patents for quick freezing, enough so that no one is very important as a means of controlling price.

Patents with considerable monopoly power are, however, still important for several foods. There is, for example, the patent for irradiation of foods with ultra-violet light, controlled by the Wisconsin Alumni Association, to which it was assigned by Steenbock, the inventor. There are some very important patents pertaining to food containers. For example, the Continental Can Co. has just recently patented a metal container with a valve which makes the can suitable for cheese. There are important patents that have to do with methods of sealing and with the lacquering of metal used in cans.

In some cases legal patent rights are secured but these are extended, without charge to anyone who cares to use them.

> Recently chemists in the United States Department of Agriculture have patented a process for deaerating the juice before it is canned. . . . The successful application of this canning process to orange juice is likely to be of considerable commercial importance in the citrus industry. This patent is dedicated to the free use of the people of the United States.
>
> Another patent of considerable commercial importance in the preservation of food products is one relating to the use of a protective wrapper to delay the onset of rancidity in oil-bearing foods. . . . The wrapper is being used extensively by food processors, but none of them has exclusive rights to it because the patent is dedicated to the free use of the public.[10]

Many types of restraint have grown up around patent rights. A restrictive licensing system may be used so that the right to use a patented process is limited to a few firms. This has been true, for example, of the processed-cheese patents and of the Steenbock patent for the process of adding Vitamin D to milk and other food products by irradiation. Of the latter, Nicholls writes:[11]

> There is little doubt that the limitation of licenses to the five or six companies controlling 60–65 per cent of the nation's evaporated

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[10] A. C. Hoffman, *The Patent Situation in the Food Industries*, U. S. Bur. Agr. Econ. (mimeo.), 1939, p. 29.

[11] "Some Economic Aspects of University Patents," *J. Farm Econ.*, Vol. 21, May, 1939, p. 497.

> milk will serve to perpetuate and enhance concentration in that industry, since the very firms granted the licenses have been those following the most restrictive policies since the war, while differentiating product to a marked degree through branding and advertising and discriminating in prices through the use of "second labels.". . . The leading chain-store organizations, which have offered the only effective competition in the manufacture of evaporated milk, during the past decade, were apparently excluded.

A small group of people control the important patents in the glass-container industry. Arnold, head of the Antitrust Division of the Department of Justice, writes:[12]

> By the skillful use of its patents . . . [it] determined who could go into business and who would keep out. It determined who could manufacture bottles, what type of bottles they could manufacture, and in what quantities. It determined in what areas they could do business. . . . It exercised its power with threats.

Antitrust action against patent holders has been effective in some cases. In January, 1942, the U. S. Supreme Court held that the holder of a patent cannot use its patent right to force the sale of some unpatented product for use with it. Threats and coercion are also illegal.

Many people feel that existing patent laws are out of date, that legislation of other types would better serve the important function of stimulating invention without granting patent holders so many rights to restrain trade. Suggestions for the revision of the patent laws include a denial of the right to a patent unless it is put into use, and the requirement that the use of a patent be made available through a license system to those who wish to use it, with the same fee being charged to all.[13]

Resale Price Maintenance

In 1937 the Miller-Tydings Act was passed which legalized resale price-maintenance contracts in interstate trade. At the present time 44 states have laws which permit such contracts. In such cases, a manufacturer may enter into a contract with a retailer to sell his brand at a specified price. Where a wholesaler intervenes between manufacturer and retailer, he, too, must resell at a fixed price. When this is done all stores sell a given brand at the same price no matter what services they offer, whether they are cash-and-carry or full-service stores. With the retailers unable to compete through lowering their prices, they tend to compete through increasing their services—a process which leads to higher costs of marketing.

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[12] T. W. Arnold, *The Bottlenecks of Business,* 1940, pp. 173–4.

[13] See, for example, W. Hamilton, *Patents and Free Enterprise,* T.N.E.C. Mono. 31, 1941; and A. C. Hoffman, *op. cit.*

Where resale price maintenance is effective, retailer and wholesaler margins become relatively fixed. As a consequence, retailers and wholesalers have less incentive to develop low-cost methods than if price as well as service competition were possible. Without price competition efficiency can only express itself in more and better services, some of which consumers might be glad to dispense with if a price difference existed between service and non-service stores.

Resale price-maintenance contracts have been used only to a limited extent in the sale of food. Their introduction has been checked by the willingness of consumers to shift to a distributor's brand if the price of national brands in the low-cost stores is pushed up. Quality information on the label would increase the willingness of consumers to shift from one brand to another.

Because of the willingness of consumers to buy distributors' brands if there is a price advantage, those seeking to restrain competition have proposed that their use be prohibited—in other words, some people would like to prevent consumers from having any option other than the price-fixed brands. Such legislation would be a major blow against low-cost marketing.

Prohibiting Sale Below Cost

Laws permitting resale price maintenance have been followed in a few states by laws prohibiting sales below costs. Interest in such legislation grew when it became apparent to grocers that they could benefit little from resale price maintenance. Vigorous lobbies were maintained by food distributors in securing legislation prohibiting sales below costs.

State laws of this type vary a great deal in their definitions of cost. A few prohibit only sales below replacement cost. If this is interpreted as the price that would have to be paid to a wholesaler for a similar product, such legislation will check the use of extreme loss leaders. But these loss leaders, after all, make up a very small part of the price specials used to attract consumers to retail stores in the hope that they will buy a large assortment of products. Sometimes the laws specify that the markup shall be high enough to cover average costs of doing business. Most of the laws are very vague as to what this means. The phrase might be interpreted as the average costs which are incurred by a representative group of retailers in selling a wide variety of foods. Or it may be interpreted as the average costs incurred in selling specific foods. In any event a requirement that prices be based on average costs lessens greatly any incentive for efficiency. Consumers should not be required to pay costs greater than those of the most efficient firm, and foods which are handled at a low cost should not be required to carry a markup sufficient to cover average cost of foods in general.

The legislation prohibiting price cutting is poorly conceived for the most part. Definitions of cost are vague. Provision is seldom if ever made for an administrative agency to make an impartial study of costs. Too much is left to the industry involved. Evidence for the courts to weigh should be prepared by economists who are in no way connected with the group that might favor high prices.

In speaking of the situation in some states, Edwards says:[14]

> A greater power of private control appears in the cases in which the results of cost surveys conducted by private groups become acceptable cost standards under the law. The statutes typically provide no standard of fairness or competence either for the surveys or for the agencies making them, and do not specify the idea of cost which the surveys are to use. Thus the effect of the statutes in certain states is to give legal color to the price policies of private trade groups.

Some provision has been made in the California law for the determination of cost. The Food and Grocery Bureau of Southern California is privileged from time to time to announce a change in minimum markup. The evidence for one increase in markup from 6 to 8 per cent was 100 postcards returned from retailers, after a questionnaire had been sent out intimating that costs had increased. This bureau at one time advised retailers in their price setting to ignore fluctuation in the retail pricing of such seasonal products as butter and eggs. In 1939 it announced:[15]

> This office is advised that many of you are selling oleomargarine at twelve cents a pound and while we know that some few sales have been made at a cost that will permit this as a retail price, in justice to yourselves and other merchants we are asking the entire trade to sell no brand of oleomargarine at less than twelve and a half cents a pound.

In February, 1942, a trial was under way in Los Angeles to determine whether business men could cooperate in this way or whether such action constituted an illegal restraint of trade.

There is evidence in states other than California that this legislation has fostered collusion among wholesalers and retailers. In Denver, Colorado, during 1941, the Antitrust Division of the U. S. Department of Justice obtained an indictment against a large number of wholesale and retail grocers for a price-fixing conspiracy carried on under the pretext of complying with the Colorado Unfair Practices Act.[16] Also during 1941, the Massachusetts Food Council—important in administering the "unfair" practice act of that state—and its members signed an agreement with the Antitrust Division which abolished the council and enjoined all effort to enforce the act privately. Fines were imposed on the Connecticut Food Council and its officers and members for collusive action.

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[14] C. D. Edwards, "Appraisal of 'Fair Trade' and 'Unfair Practice' Acts," *J. Marketing*, Vol. 5, July, 1940, pp. 3–15.

[15] *Ibid.*

Tannebaum, after his study of this type of legislation, concludes that the difficulty of administering an act which prohibits sales below total cost is so great that it probably should not be attempted. He feels that it might be socially desirable to put a floor under prices and yet avoid the charge of price fixing that interferes with efficiency. In summarizing the general situation he writes:[17]

> The use of replacement cost alone as the point below which sales cannot be made results in the prohibition of predatory loss leaders. However, if a higher figures is desired; i.e., if loss leader-selling is to be prohibited, then to the replacement cost of the merchandise should be added a mark-up equal to or lower than the figure which can be achieved by the most efficient firm in the market. This mark-up probably could be determined best through the use of scientifically constructed and applied cost surveys. The resulting figure would be relatively simple to compute, would achieve the results actually desired by the proponents of the acts, and would not produce price fixing.

Laws against price cutting by grocers, or by any other retailers for that matter, seem to serve little or no useful social purpose. There is no important evidence from systematic studies that efficient retailers are injured by loss-leader pricing or that consumers are deceived by it any more than by other means that are used to attract their patronage. Such legislation could be used, of course, to check that price cutting that drives competitors out in order to get higher prices later. To use a law forbidding price cutting below average cost, in order to serve this purpose, however, would make the "cure" worse than the "disease." Furthermore, the checking of price cutting, for the purpose of driving out competitors and obtaining a higher price later, comes within the jurisdiction of the antitrust legislation. A serious attempt should be made to enforce this legislation before imposing restraints that tend to interfere with low prices which result from a high level of efficiency or from a willingness of consumers to dispense with services.

[16] An act prohibiting sales below cost.

[17] R. Tannebaum, *Cost under the Unfair Trade Practices Act*, Univ. Chic. Studies in Bus. Adm., Vol. 9, 1939, p. 57.

Robinson-Patman Act

One other type of legislation which has a very direct bearing on marketing costs needs to be mentioned, that is, the Robinson-Patman Act, regulating quantity discounts. Chain merchandising increased the importance of large-scale buying agencies. Some people contended that these agencies, because of their size, were able to force quantity discounts greatly in excess of the savings effected by the scale of their purchase. The Robinson-Patman Act in 1936 prohibited a price differential greater than was justified on the basis of cost and prohibited pseudo-brokerage fees and other concessions that were, in part, price discounts, available only to large-scale buyers. The latter requirement struck at brokerage fees which were given where no separate agency existed.

After five years the effects of the act are becoming apparent. The Federal Trade Commission, which administers it, appears to be willing to accept cost data that permit a considerable difference in price per unit with orders of various sizes. The major criticism of the act which has been noted is the refusal to allow rebates in lieu of brokerage. Some students of the act claim that it does not prohibit such rebates, that it merely prohibits them if there is not an equivalent saving in cost to the seller because of the method of purchase. Nevertheless, interpretations of the act have resulted in brokerage rebates being forbidden even though they do not injure or lessen competition, and even if it can be shown that the buyer through the method which he uses saves the seller the cost of the broker's fee.

Hoffman, in discussing the prohibition against a buyer's receiving rebates in lieu of brokerage, writes:[18]

> What this ruling actually does is to fortify, at least temporarily, the position of the specialized middleman in food distribution. If the mass distributor is not entitled to receive the brokerage fees on his direct purchases (or a discount in price equal to such brokerage), then obviously he has no incentive to go around the regular channels and deal directly with farmers and processors. If there were no other alternative, then the effect of the Robinson-Patman Act indeed would be to reinsert the specialized middleman into the system of mass distribution, a position from which the economics of the situation would tend to eliminate him.

Restraints by Labor Unions

Some policies of labor unions contribute to increased efficiency as well as to greater equity in income distribution and to more desirable working conditions. In some cases, however, they have obstructed important improvements and greatly increased costs without increasing the equity of income distribution for workers in general. In relation to food, the power of unions to reduce efficiency and increase cost is very apparent in the matters of delivering milk and in trucking and unloading produce. Union rules, for example, may declare that the truck driver who brings produce to a city cannot drive the truck in the city; his place must be taken by someone belonging to the city union. Duplication of labor results.

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[18] T.N.E.C., Mono. 35, p. 151.

The recent increased activity on the part of the Antitrust Division has included cases bearing directly on food and involving labor unions. A recent case in Washington, D. C., serves to illustrate the application of antitrust legislation to trade unions. In 1942 a federal court rendered a decision in favor of the Teamsters' Bakery Drivers' Local and the Bakery Workers' Local, both of Washington. These unions were being prosecuted for an agreement which excluded low-priced bread from the neighboring city of Baltimore. In line with the previous interpretation of the law, it was held that union activities in self-interest, including combinations between unions restraining trade, were not illegal under the Sherman Antitrust Act; whereas the combination of a labor union with a non-union firm or group would be illegal.

There seems little doubt that a major social issue to be faced during the near future is the modification of the rights and responsibilities of labor unions.[19]

Industries Where Illegal Restraints Are Probable

Wherever the processing or the handling of a product in any market is concentrated in a few firms, the ease of getting agreement as to joint action increases the likelihood of collusion among competitors. Even when heads are not, as it were, put together, knowledge that whatever action it takes is likely to make its competitor follow suit, on the part of one firm, tends to evolve customary arrangements of a restrictive type. Markets come to be shared, and follow-the-leader and basing-point pricing occur. With the latter the price paid by the buyer is equal to the price quoted at the basing point, plus the transportation from the basing point even though the product is shipped from some place other than the basing point. This practice tends to increase the cost of transportation because there is no inducement to the buyer to purchase at the point of supply closest to him.[20]

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[19] For discussion of present legislation see C. D. Edwards, "Public Policy toward Restraints of Trade by Labor Unions," *Proc. Am. Econ. Ass.*, March, 1942, pp. 432–48.

[20] *The Final Report and Recommendations of the Temp. Nat. Econ. Comm.*, 1941, recommended that legislation be enacted prohibiting this type of pricing.

Concentration of processing is very pronounced for some foods. Edwards reports:[21]

> Three meat packers sell more than 55 per cent of the beef carcasses and cuts, 83 per cent of the veal carcasses and cuts, 25 per cent of the pork carcasses and cuts, 36 per cent of the cured and processed pork products, 23 per cent of the lard. . . . Three flour millers sell 29 per cent of all the flour produced, three milk companies sell 44 per cent of the canned milk; 42 per cent of the cheese, and 16 per cent of the butter produced in the country. If the sales of these products by three great meat packers are added, the six companies sell 51 per cent, 79 per cent and 33 per cent of canned milk, cheese and butter, respectively. Three canners process 67 per cent of the plums, 56 per cent of the asparagus, 52 per cent of the dried beans, 47 per cent of the spinach, 32 per cent of the prunes . . . and 30 per cent of the peaches produced for canning.

In addition, 3 companies manufacture 90 per cent of the cans, the cost of which represents 13 to 25 per cent of the total price of canned food—the cost of the cans in fact being at times greater than the cost of the food which goes into them.

The existence of a few sellers or buyers who might conspire to restrain trade is, of course, not in itself proof that illegal restraint of trade occurs.

Illegal Monopoly Practices and Restraints of Trade

Buyers may wish to depress the price of a product in order to have a larger spread between their buying and their selling price. A single buyer may do this by a process which is commonly described as in-and-out buying. In this case, a large-quantity buyer regularly may take a major part of the produce in a given area. Suddenly, contrary to the sellers' expectation, he drops out of the market. The produce may continue to move into the local market center as usual. After two or three days or perhaps a week, when a considerable amount of the product has accumulated, the large-scale buyer may return and offer to clear the market at a reduced price. The buyer then may claim to be helping to move a surplus, even though the existence of the "surplus" was deliberately created by the buying method used. Even though such a method at times is used, most of the offers to buy large quantities, if prices are lowered, probably constitute genuine aid in moving a relatively large supply.

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[21] Quoting from T. Arnold, *The Bottlenecks of Business, op. cit.*, p. 230. See Federal Trade Commission, *Agricultural Income Inquiry*, Parts I and II, for further details on the concentration in food-processing industries.

Arnold describes another price-depressing tactic, used at times by big canners, chain-store buyers, and commission men. He writes that they[22]

> cover their requirements with contracts which provide that price shall be the going market price at the time they take delivery, and that when the delivery date comes around they manipulate the market price by withdrawing their buyers from the market and by dumping produce which is under their control.

Enforcement of antitrust laws have an important part in checking such abuses. Better organization on the part of sellers may also be very effective. Some people feel that large-scale marketing cooperatives need to be built up by farmers in order to match strength with strength. Cooperatives are envisioned as a means of achieving orderly marketing, so that products are not shipped and dumped into various markets without full knowledge of demand-and-supply conditions, and contracts are not entered into without systematic study of the potential market for products in the future.

In an effort to keep down the prices of products which they have to buy, competitors may get together and agree on price, or on how much each is going to buy. Fake bidding may be staged.

Arnold writes:[23]

> There is no question but that local dealers frequently get together and fix the prices they will pay for farm products. It is also commonplace knowledge that the men who handle and transport these products often have agreements on minimum rates. The handlers at the terminal markets are notorious for their trade restraints.

It had been the custom for a few people to get together once a week in Plymouth, a small town in Wisconsin. A blackboard was set up and a few seconds of shouting were followed by the secretary's writing on the board the prices of various grades of cheese. These became the basic prices for cheese all over the country.[24]

Unnecessary costs at any point in the market system serve both to depress prices to farmers, and hence to check future supply, and to raise prices to consumers. Some of them are the result of collusion:

> In some cities costs of distribution are kept unnecessarily high by various forms of racketeering. The most common type of racket appears to be carried on in connection with the trucking of produce within some of the large cities. The growth of these trucking

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[22] T. W. Arnold, "Monopolies," *The Nation's Agriculture*, January, 1941, p. 26.

[23] *The Bottlenecks of Business, op. cit.*, p. 219.

[24] For antitrust action on this practice see p. 559.

> rackets has been made easier by the lack of adequate market facilities or the improper location of these facilities. Sometimes these rackets take the form of making exhorbitant charges for services that could be rendered at lower cost. In others, inefficient roundabout methods are enforced when services could be performed much more efficiently in some other way. And in still other cases, charges are assessed for rendering of no service at all. These rackets have taken many forms in the different cities, but the purpose and the result is always the same—the extortion of unnecessary charges in the marketing of fruits and vegetables. . . .[25]
>
> Among the most notorious of these rackets was the one which controlled the live poultry market in metropolitan New York. For many years, a ring of 27 to 30 commission men fixed the price of chickens bought from producers in 40 states and the price of those sold to some 200 slaughter houses and several hundred retailers in New York City. [The commission men were allied with four unions.] It was estimated that . . . profits amounted to as much as $2,000,000 in a single year. . . . Collusive activities have also characterized the markets for fruits and vegetables, in many cities.[26]

Just as buyers may conspire to depress prices, so they may conspire to maintain them. Collusion as to markup accompanying legislation prohibiting sales below cost has already been discussed. Meat packers are at times accused of controlling the price of meat, for example:

> The price of meat products in different cities in the United States seems to bear no apparent relationship to their cost of shipment from the major producing centers. . . . Prices [of average wholesale prices for "good beef carcass"] in the two large packing centers—Chicago and Kansas City—were $17.22 and $18.02 respectively, or materially above this average for the United States. In contrast, the value in Baltimore, which is remote from the major producing area, was only $14.11. . . .[27]

Over and over again local bakeries have set the price of bread and agreed not to compete in the sale of stale bread. This has resulted in some instances in a waste of as much as 17 per cent of the total bread produced. Stale bread is returned and at times becomes fertilizer.

Monopoly practices of sellers may take the form of extremely low prices in order to force competitors out of business and secure for a firm a certain volume of business which, once secured, will be maintained by prices on a somewhat higher level. Some chain stores have been accused of such practices when establishing themselves in a community. Some investigation of these practices has been made.

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[25] W. C. Crow, *Wholesale Markets for Fruits and Vegetables in 40 Cities,* U. S. Dept. Agr. Cir. 463, 1938, p. 23.

[26] T.N.E.C., Mono. 21, 1940, p. 295.

[27] T.N.E.C., *Price Behavior and Business Policy,* Mono. 1, 1940, p. 294.

Stepping Up the Enforcement of the Sherman Antitrust Act

In 1938, Congress appointed the Temporary National Economic Committee to investigate the concentration of economic power in American industry. During the same year, Thurman Arnold was appointed to head the Antitrust Division of the U. S. Department of Justice. For the first time in the fifty years of its existence, a genuine effort is being made to enforce the Sherman Antitrust Act. A greatly increased staff of workers is employed and a major change in technique has been made. Rather than deal with the violations of one firm after another, the staff investigates at once all illegal practices bearing on a given situation.

In 1940 Arnold announced that he would turn his attention to the food industry.

Some Recent Cases Indicted under the Sherman Antitrust Act[28]

Indictment pertaining to collusion among retailers and wholesalers in attempting to check price reduction has already been noted. Toward the end of 1941, Edwards reported on indictments in the food industry in general.[29]

> More than thirty indictments have been returned involving a total of 1,765 defendants. Prosecutions thus far instituted deal with bread, meat, milk both fresh and canned, cheese, butter and eggs, canned fruits and vegetables, dried fruits, fish, beer, cranberries, wholesale grocers, wholesale tobacco and candy distributors, and retail grocers. Investigation of these areas is continuing. Other investigations, some of which are near completion, cover further aspects of the food industries—particularly fresh fruits and vegetables and chain store activities.

The indictments covered all stages of food industries, including growers, cooperatives, terminal market facilities, fresh fruit and vegetable auctions, manufacturers, wholesalers and retailers, among whom were some corporate chains.

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[28] For a discussion of cases involving the milk industry, see Chapter 29.

[29] C. D. Edwards, *Food Processors and the Antitrust Laws*, speech before the Associated Grocery Manufacturers of America, Nov. 7, 1941.

Combination in restraint of trade occurs under cover of A.A.A. marketing agreements. Three organizations and 35 individuals were indicted during June, 1941, for an attempt to control the production and the price of canned peas.

In December, 1941, a Chicago court indicted the major meat-packing companies for allegedly violating the Sherman Act by fixing both the prices paid to farmers and the prices charged to consumers.[30] About the same time indictments were secured against the California Fruit Growers' Exchange, the Florida Citrus Exchange, ten fruit auction firms, one auction association, and 23 individuals connected with these groups. In addition, the Antitrust Division's suit against 11 large bread bakeries in the Middle Atlantic region, resulted in large fines' being imposed.[31]

In March, 1942, a special federal grand jury returned indictments against 46 corporations and 56 individuals for conspiring to fix cheese prices.[32]

Ways of Dealing with Monopolies and Combinations in Restraint of Trade

To some the action called for, because of the existence of monopolies and combinations in restraint of trade, lies in a vigorous enforcement of the Sherman Antitrust Act. They would have a staff large enough effectively to police industry, to check a sufficient number of the violations so that honest business men would not feel impelled by existing business practices to infringe the law and so that those with dishonest tendencies would be held in check by fear of fines and imprisonment. Such a policy would probably call for an even larger staff for the Antitrust Division than now exists; moreover, regional offices appear to be needed, so that continuing supervision is possible.

To promote more effective checking of combinations it is highly desirable to abolish certain legalized restraints on trade, discussed in the early part of this chapter, as well as those discussed in Chapters 29 and 30.

For those industries with a few large firms, collusion is so easy and competition is so unnatural that some people feel that the industry should be declared a public utility, subject to outright regulation or even to state ownership and operation. This matter continues to be the subject of hot debate.

[30] See *Business Week,* Dec. 6, 1941.

[31] *Ibid.,* Dec. 27, p. 45.

[32] *Bread and Butter,* Mar. 27, 1942.

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Fluid-Milk Prices[1]

THE importance of milk in the diet and the factors affecting its prices are sufficiently unique for a separate discussion of fluid-milk prices. An increase in milk consumption is a major objective of the nation-wide nutrition program. A small part of the population in this country has ample milk; another relatively small group has a moderate amount. But a very large proportion of the people, including many children, get far too little milk. It seems highly desirable to increase the consumption of such milk products as evaporated milk, dried milk, both whole and skimmed, as well as dried buttermilk and whey. Nevertheless, many people visualize better diets in terms of an increased consumption of fluid milk. Education, stressing the nutritional importance of milk, will alone have some effect. In some communities the introduction of pasteurization is a major needed change. Refrigeration facilities on farms may be an important factor in stepping up milk consumption there. Subsidy to increase the milk consumption of relief families and of the school children of low-income families in general has been discussed. Many people, moreover, feel that something should be done to bring down the price of fluid milk to families in general. Frequently milk prices are looked upon as too high—too high largely in the sense that more efficient or less expensive methods might be introduced that would bring lower costs.

How Can Milk Prices Be Reduced?

In answering this question, the process of making milk available to consumers should be examined step by step. In examining a situation several factors making for high price must be kept in mind: (1) incompetence due to ignorance, inertia, etc., (2) the provision of unnecessary services either because of legal rulings or by agreement among the so-called competitors; (3) duplication of facilities so that firms are operating at less than optimum scale; and (4) monopoly elements among basic producers who hold back a part of the supply in order to get a high price or monopoly elements among processors.

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[1] Fluid milk as defined here does not include evaporated milk.

There seems little doubt that many farms might improve their methods and lower their costs. It is highly probable that in time much more efficient methods of production will be developed. The present interest in nutrition extends to the cow. More and more is being discovered concerning her diet in relation to milk production. In addition, better methods are being introduced on a greater proportion of the farms.

Unnecessary services in some places are provided in the form of sanitary standards that are higher than necessary for both safe milk and minimum aesthetic standards that will make milk an acceptable product to consumers. These have already been discussed. In addition, there is considerable evidence that in many communities unnecessary services are being provided in distribution. These are continued at times because distributors agreed not to permit a price differential between store prices and house-to-house delivery. Some distributors have demonstrated that through certain simple changes considerable cost reductions can be effected.

Much has been said about duplication in the fluid-milk industry—duplication in trucking the milk from the farm to the distributor and duplication in the many delivery wagons that go down a single street.

Elements of monopoly are also present. It has already been pointed out that milk-inspection rules are used in some milksheds to block supplies from outlying areas. In addition, A.A.A. marketing agreements are used at times to limit the total supply of milk to be made available.

The classified pricing system, according to which distributors pay producers for their milk on the basis of the use to which it is put, in some communities, has had the effect of raising somewhat the price of fluid milk. A higher price is paid for milk to be sold as fluid milk than for that to be condensed or that going to butter production. Consumers get some compensation from the fact that a high price for fluid milk is offset somewhat by prices of butter and evaporated milk being somewhat lower than would otherwise be true. The increase in the price of milk, resulting from the classified milk systems, differs from one milkshed to another. Bartlett is of the opinion that it is relatively unimportant in the effect of total price and in comparison with the savings that might be effected by other types of changes.

Monopoly elements occur among distributors. They take the form of agreements of various kinds, which are a very important factor in making for high costs. A consensus exists that the greatest opportunity for lowering the price of milk lies in lowering distribution costs.

Marketing Costs[2]

Tinley's extensive study of marketing costs in California revealed a wide range in per unit cost from one distributor to another. He expressed the opinion that:[3]

> Considerable economies and lower unit operating costs are possible in most milk markets in the State. If the numerous expensive trade practices could be eliminated, some reduction in unit costs could be forthcoming immediately and without any change in the number of distributors.

Spencer has made a systematic study of gross spreads in New York City for the years 1929 and 1938, between price paid to farmers and that paid by consumers for various types of milk. A major change during this period occurred in that sales of bulk milk in stores were eliminated. Its place appears to have been taken by unadvertised brands of milk sold in stores. These have a somewhat higher gross margin than bulk milk had. However, the gross spread on grade B delivered milk was 8.1 cents in contrast with 5.4 cents for grade B unadvertised brands sold in glass bottles in stores. (See Table 111.)

Delivery costs have been studied repeatedly.[4] In the city of Milwaukee, in 1934, delivery costs per stop were reported to be 4.94 cents.[5] An independent milk distributor in the city of Detroit after many years' experience reports that "Delivery costs in the city of Detroit are at least 5 cents."[6] The President of the United Dairy Workers Union of Detroit, Michigan, agrees that the average cost per stop is about 3 cents.[7] The President of the Borden Company, New York City, testified that "4 cents (per quart) goes to the retail-route man."[8] It is not strange that some people maintain that delivery service is a luxury designed for people of wealth.[9]

[2] In this discussion attention is focused on the cost of getting milk to families for home consumption. In cafeterias and restaurants it is possible, through the use of bulk dispensers, to cut cost over that incurred in providing milk in half-pint bottles. At the present time more than eight types of dispensers have been rated "perfectly sanitary."

[3] J. M. Tinley, "Reducing Cost of Distributing Milk in California," *J. Farm Econ.*, February, 1939, p. 307.

[4] No study has been noted bearing on the frequency or cost of special deliveries.

[5] U. S. Dept. Agr., A.A.A., *A Survey of Milk Marketing in Milwaukee*, Marketing Information Series, DM-1, 1937, p. 77.

[6] T.N.E.C., *Hearings*, Part 7, p. 2849.

[7] *Ibid.*, p. 2954.

[8] *Ibid.*, p. 2972.

[9] See A. M. Freiburg, "Milk Delivery: Necessity or Luxury," *Har. Bus. Rev.*, autumn, 1941, pp. 716–23.

Table 111. Changes in Gross Spread on Milk for Home Consumption, New York City, December, 1929, to December, 1938 *

Item	Approximate Percentage of Total Volume		Gross Spread in Cents per Quart	
	1929	1938	1929	1938
Grade A, delivered:				
Regular	22.0	5.5	10.4	10.1
Vitamin D		10.0		11.1
Grade B, delivered:				
Regular	35.0	19.5	8.4	8.1
Vitamin D		12.0		9.1
Grade B, at stores:				
Advertised brands	8.0	7.0	8.4	7.4
Other brands:				
Glass bottles		29.0		5.4
Paper containers		16.0		6.4
Bulk	35.0		4.4	
Grade B, at welfare depots		1.0		2.4
All milk †	100.0	100.0	7.44	7.47

* L. Spencer, "Ways of Reducing Costs of Distributing Milk in New York," *J. Farm Econ.*, February, 1939, p. 291.

† Excluding certified milk, which constitutes less than one per cent of the total volume.

Spencer, in discussing delivery costs, states:

> By far the most expensive item is delivery. This, together with the selling and collection expense, comes to about 5.6 cents per quart, or 70 per cent of the total (spread between the price paid to the farmers and the price paid by consumers). It costs practically as much to get a bottle of Grade B milk from the milk plant in the city to the consumer's door as the farmer receives for the feed, labor, capital, and other expenses incurred in producing the milk and delivering it to the country plant. . . .[10]

In December 1938, wholesale delivery costs plus the store margin in New York City were about 3.5 cents a quart, which compares with a cost of 5.6 cents on retail routes. The saving of 2 cents a quart is passed on to the consumer as compensation for performing

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[10] L. Spencer, *op. cit.*, p. 292.

> a part of the delivery service herself. Actually the store price is about 2.75 cents lower than the door-step price.[11]

House-to-house delivery costs have not only been high but they have been increasing. Bartlett reports that in the Chicago milkshed, from 1913 to 1938, the farm price of fluid milk increased 9 per cent, the dealers' gross margin increased 191 per cent, and the drivers' weekly wages (without commissions) increased 253 per cent.[12]

Bartlett, in addition, points out that in 1938 the basic union wage scale of milk-wagon drivers in Chicago was $48 per week, which, with commissions, averaged about $52. In contrast, the estimated weekly wage for grocery clerks and others engaged in retail distribution in Chicago averaged about $26.[13]

Some people point out at times that a unified system of milk distribution to homes would effect considerable savings. Mortenson, for example, considers that studies made in cities of 100,000 population or less leave little room to doubt that in the conditions investigated

> an efficiently operated, unified system of milk distribution could bring about a reduction of milk-distribution costs by amounts varying from, say, 1½ to 2 cents perhaps even 2¼ cents per quart of milk delivered.

He adds, however:

> Even though it can be shown that such savings could be brought about, there is no proof or certainty that they would be carried out if unification in milk distribution were put into effect.
>
> When one leaves the purely technical phases of the investigation and attempts to analyze the social implications involved, the problems become much more complex and less tangible and predictable.[14]

Furthermore, such a system might still be more expensive than store sales.

It would be possible to cut delivery costs by having delivery only on alternate days. With a shortage of rubber for delivery trucks looming, this possibility was being widely discussed early in 1942 and the system, in a few places, was already inaugurated. One study reports that delivery on alternate days would save "38.2 per cent of the time now spent in making deliveries to family retail customers" and would save 41.5 per cent of the mileage.[15]

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[11] *Ibid.*, p. 294. See also R. W. Bartlett, "Increasing Milk Consumption through Lowering Distribution Costs," *Ill. Farm Econ.*, November, 1940.

[12] R. W. Bartlett, *The Price of Milk*, 1941, p. 6.

[13] R. W. Bartlett, *Some Consumption Studies*, Extension Service, Univ. Ill. (mimeo.), A. E. 1,265, 1939, p. 245.

[14] W. P. Mortenson, *Milk Distribution as a Public Utility*, 1940, p. 182. See also *A Survey of Milk Marketing in Milwaukee*, 1937, Marketing Information Series, DM-1, pp. 5–6.

Even where milk is sold through stores there is need to appraise delivery cost carefully. Considerable duplication of delivery service to stores occurs if several distributors serve one store.[16] The recommendation is made at times that only one distributor be allowed to serve any one store. In view of marketing practices in the sale of other foods, such a ruling would be a major innovation in our economic system and would appear very arbitrary if applied only to milk.

Type of container may be a factor in cost. It appears to be too early to predict whether paper containers will be cost reducing. So far the cost of the paper container itself is greater than the cost per use of the average bottle. Paper containers do, however, increase the amount of milk that can be taken in one load. Some studies show that the use of paper containers reduces the cost of bottling.[17] Their use should also economize on the refrigeration space needed for milk in both stores and homes. This may be an important factor in store cost when sales there expand. In addition, paper containers need not be returned. Furthermore, because they are lighter in weight than glass, their use should be a factor encouraging consumers to purchase milk at cash-and-carry stores. It is of interest that in November, 1939, the two largest distributors in New York City "initiated the use of the two-quart paper container on their retail routes at 1½ cents per quart lower than the quart price in glass bottles." [18]

Pricing Practices

To what extent do distributors through their pricing encourage consumers to use the less expensive method of obtaining milk? The history of store and door prices in New York City and Chicago are shown in Table 112. Until June, 1933, store milk in New York City was largely loose or dipped milk. Since that time, when the sale of loose milk was forbidden, the quality of the milk under the two methods of selling has been much the same.

The Consumers' Counsel Division of the A.A.A. recently secured reports on pricing practices from 250 American cities. Among other things, information was sought on the savings possible if consumers pay cash and get the milk themselves. Of 228 cities replying on this point, no

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[15] *Farm Econ.,* N. Y. Coll. Agr., February, 1942, p. 3245.

[16] For the extent of such duplication, see *Farm Econ.,* N. Y. Coll. Agr., January, 1940, pp. 2863–5.

[17] See *Ill. Farm Econ.,* November, 1940, p. 425.

[18] *Ibid.,* p. 424.

Table 112. Home-Delivered and Store Prices of Milk in Chicago and in New York City, 1925–1940 (Cents per Quart) *

Year	Chicago			New York City		
	Door price	Store price	Net difference	Door price	Store price	Net difference
1925	14.0	14.0	0.0	14.8	10.1	4.7
1926	14.0	14.0	0.0	15.0	10.0	5.0
1927	14.0	14.0	0.0	15.3	11.7	3.6
1928	14.0	14.0	0.0	15.6	10.6	5.0
1929	14.0	14.0	0.0	16.0	11.0	5.0
1930	13.9	13.9	0.0	15.7	10.7	5.0
1931	13.0	12.6	0.4	14.7	10.4	4.3
1932	11.3	10.9	0.4	11.9	8.9	3.0
1933	9.8	9.8	0.0	11.1	9.1	2.0
1934	9.5	8.0	1.5	12.6	10.5	2.1
1935	10.6	9.9	0.7	13.0	11.0	2.0
1936	11.4	10.4	1.0	13.1	11.0	2.1
1937	12.5	11.5	1.0	12.6	9.7	2.9
1938	12.4	10.9	1.5	13.1	9.4	3.7
1939	11.7	9.5	2.2	13.6	11.1	2.5
1940	13.0	8.5	4.5	14.8	11.0	3.8

* R. W. Bartlett, "Maintaining Stability in the Market-Milk Industry through the Use of Flexible Prices," *Ill. Farm Econ.*, July, 1940, p. 375.

saving was possible in 129. In the other 99 cities, the savings possible to cash-and-carry consumers were as follows:[19]

One cent in 44 cities.
Two cents in 27 cities.
Three cents in 15 cities.
Four cents in 9 cities.
Five cents in 2 cities.
Seven cents in 1 city.
Eight cents in 1 city.

The wide range in the price differential between store sales and house-to-house delivery would suggest that pricing practice in some cities are far from being on a stable basis. In some cases the differential is probably less than it should be; in some, it may be too high. The former condition seems likely to be more common than the latter.

A report was also secured on price differentials according to size of container and quantity purchased: "Milk was offered for sale at reduced prices in multiple-quart containers in 93 cities. In 41 cities, milk can be bought in 2-quart containers; in 52 cities milk can be had in gallon containers and in all of these cities some savings were passed on to consumers." The price reductions for purchasing in larger-than-customary containers was as follows:

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[19] *Consumers' Guide*, Dec. 2, 1940.

> One cent or less in 15 cities.
> Over 1 to 2 cents in 36 cities.
> Two to 3 cents in 23 cities.
> Three to 4 cents in 10 cities.
> Four to 5 cents in 9 cities.

> From an Ohio city along with the report on multiple-quart containers, came a comment. "We feel we are very fortunate in regard to milk in our community. The milk sold in quarts and gallons is the same quality milk, but by using the gallon container, getting milk only as often as needed per week, one gets excellent milk at 30 cents per gallon." [20]

Savings made possible by purchasing more than one quart at a time were also reported, the usual savings being 2 cents a quart. In 10 cities, savings were reported if a certain amount of milk were taken per week or per month. Every-other-day deliveries made savings possible in 4 cities. In 35 cities, a few consumers seemed to be aware of the merit of skim milk. In most cases it was available at 10 cents a gallon to those consumers who came to the dairy with their own containers. Few people secure milk in this way; so there is no assurance that this price would be given if a considerable increase in demand occurred.

At this point a recent report of the Agricultural Marketing Service, bearing on price differentials, is of interest: [21]

> Probably most storekeepers would be willing to agree to sell two or more of the following:

(*a*) Milk, grade B or better	11 cents per quart
(*b*) Skim milk or buttermilk	7 cents per quart
(*c*) Chocolate drink (made from skim milk)	8 cents per quart
(*d*) Cottage cheese	10 cents per pound

> These prices, like those suggested for other products, represent approximate U. S. averages that might be possible under present conditions. The higher the price of butter, the greater the price should be between whole and skim milk.

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[20] *Ibid.*, pp. 14–5.

[21] *Marketing Activities*, February, 1942, p. 25.

Consumers' Response to Milk-Price Differentials

Several questions arise: Is more milk consumed when prices are lowered? And, conversely, is less consumed when prices are raised? If prices differ with marketing service what proportion of the consumers select the less expensive service? How speedily do they shift and how is their behavior affected by the size of the price difference?

Reference has already been made in Chapter 20 to the increase in the consumption of milk by low-income families in Washington, D. C., when 5-cent milk was provided. Bartlett reports a marked increase in the consumption of milk in St. Louis and Cincinnati with reduction in prices. He attributes the failure of milk consumption in Boston to return in the late thirties to predepression levels, as did the milk consumption in New York City, largely to losses in store sales, resulting from unduly high resale prices, particularly for store milk.[22]

A few studies have been made of consumers' response to an opportunity to save through buying milk at stores and taking it in larger containers. A shift to store sales is shown in Table 111: from 43 per cent of total volume in 1929 to 52 per cent in 1938.

In June, 1938, a survey was made of 4,508 retail food stores located in representative population areas in New York City. In this study several facts stand out: [23]

> (*a*) The stores patronized by low-income families sold fresh milk at lower prices than those in the medium- and high-income areas.
>
> (*b*) Stores sales of Grade B milk per family were highest in the area where the family incomes were lowest. Studies have repeatedly shown that low-income families consume less milk than high-income families. Their larger purchase through stores merely indicates that they buy at the store rather than at the door.
>
> (*c*) The percentage of families using house-to-house delivery service varied with the average income of the area. In June 1939 it was 18 per cent in the low-income area and 45 per cent in the high-income area.
>
> (*d*) The sales per family were greatest where the price differential between store and door prices was greatest.

In Chicago the proportion of milk distributed through stores increased from 20 per cent in 1929 to 46 per cent in 1939.[24] There was no price difference between store and door sales until 1934. Of this city Bartlett reports:[25]

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[22] *Ill. Farm Econ.*, March, 1940, p. 331.

[23] C. Blandford, "Relation of Family Income to Price and Sales of Fresh Milk, Cream and Evaporated Milk by Stores in the New York Market, June, 1938," *Farm Econ.*, N. Y. Coll. Agr., February, 1939, p. 2720. See also Cornell (N. Y.) Agr. Exp. Sta. Bul. 765, 1941.

[24] R. W. Bartlett, "Increasing Milk Consumption through the Use of Quantity Discounts," *Ill. Farm Econ.*, March, 1940, p. 330.

> Beginning January 1934, chain stores charged 1 cent less than the wagon price. In 1938 the regular differential was increased to 2 cents a quart. As early as 1932, however, the store price for milk sold by independent dealers was considerably lower than that of organized dealers. At present [November 1939], a considerable part of the store milk purchased in Chicago is sold at prices of two quarts for 21 cents, or less. Store sales thus make possible a saving of at least 2½ cents per quart below the home delivered-price of 13 cents.

Bartlett in describing the sequence of events in St. Louis writes:[26]

> Sale of milk in gallon jugs at 32 to 36 cents at stores paved the way for sale of milk in gallon lots at 40 cents on retail routes. These prices were 3 or 4 cents below the announced retail price for quarts—13 cents on wagons and 12 cents in stores. Gallon jugs were followed by the two-quart bottle, selling from 16 to 18 cents in stores and 22 cents on home deliveries.

Bartlett also reports:[27]

> In the fall of 1938 price reductions in St. Louis of 3 to 4 cents per quart for milk in gallon lots caused the proportion of total home deliveries of milk sold in gallon lots to increase from 6.8 percent in July, 1938, to 22.2 per cent in July, 1939.

During the period when prices to consumers were being lowered there was no decrease in the price which was paid to farmers.

A study has been made of milk consumed before and after quantity discounts have been given for door milk. In the city where the study was made quantity discounts were introduced in 1932, at first with a discount of 1 cent per quart for milk taken in gallon lots. This was later increased to 2 cents. By March, 1938, "more than 20 per cent of the families included in the study made use of the discount privilege as compared with less than 2 per cent in March, 1933."[28]

> This study showed that 154 families (who purchased milk in gallon lots at a quantity discount) increased their per capita consumption from an average of .81 pint daily for the 6 months before they changed to the quantity-discount plan of buying milk to .96 pint daily for the first 6 months after they changed to the plan. . . . This increase amounted to over 18 per cent. . . .

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[25] *Some Consumption Studies,* Ext. Ser., AE-1,265, Univ. Ill. (mimeo.), 1939.
[26] *Ill. Farm Econ.,* March, 1940, p. 331.
[27] *Ill. Farm Econ.,* August, 1940, p. 385.
[28] *Ibid.*

> Following the large increase during the first 6 months, these families tended to reduce their consumption. Thus, records of 53 families showed a decline in their per capita consumption of milk from .97 pint daily for the first 6 months when they started buying milk in gallon lots to .92 pints daily after they had used the quantity-discount plan for 2 years. However, this consumption of .92 pint was 8 per cent higher than their consumption had been before they used the plan.[29]

In this study very few families classed as medium or low income were reported purchasing milk in gallon lots at a discount.

> The use of the quantity discounts were largely limited to high income families whose per capita consumption previously was materially higher than was the average market consumption.[30]

It would appear that quantity discounts are of little or no value to families with low to moderate incomes. Their need may be, first of all, for lower prices on one-quart purchases.

Although a few consumers will pay a higher price for milk in paper containers, its importance for many consumers depends on a money savings which it makes possible. One study reports for New York City: [31]

> At most of the stores the price of milk in paper containers was one cent higher than the price of milk in glass bottles. Comparatively few families in low income areas were willing to pay any premium for milk in paper containers. A two-cent differential practically eliminated paper container sales in such areas. . . .

Obstacles to Price Differentials

Milk distribution has tended to be concentrated in the hands of a few firms. It is hence not surprising to find signs of agreements as to prices and marketing practices. Howe, in testifying before the Temporary National Economic Committee, stated: [32]

> The distributors insist upon wagon delivery. They oppose sales through stores in every way possible; in most cities they refuse to

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[29] *Ibid.*, p. 386. The records were secured from the retail route delivery books of a distributor. If the families, because of the quantity discount received for door milk, reduced their purchase of store milk, the increase reported in their consumption is somewhat exaggerated.

[30] *Ibid.*

[31] C. Blandford, "Relation of Family Income to Prices and Sales of Fresh Milk, Cream, and Evaporated Milk by Stores in the New York Market, June. 1938," *Farm Econ.*, N. Y. Coll. Agr., February, 1939, p. 2722.

[32] Paul Howe testifying before the Temp. Nat. Econ. Comm., "Investigation of the Concentration of Economic Power," *Hearings*, Part 7, 1939, p. 2783.

> permit a lower price over the counter than that charged by wagon delivery. When forced to make concessions, they allow the store a differential of from 1 to 2 cents a quart.

Those distributors who wished to retain house-to-house deliveries have been supported by the Milk Drivers' Union. To milk drivers, a change meant fewer jobs—a condition to be opposed at any cost, including bomb throwing, window smashing, setting fire to stores that sold at less than the specified price, and slugging drivers who delivered to them.

Bartlett writes:[83]

> Officials and members of the milk wagon drivers' union, through intimidation, threats, and violence, have frequently interfered with the work of employees of independent milk distributors in Chicago. Drivers for the independent dealers have been refused membership in the union because such dealers cut prices. On one occasion a union official tried to induce a peddler selling milk for an independent distributor to sell his business or buy milk from Borden. On another occasion an attempt was made to intimidate a nonunion truck driver employed by an independent distributor to quit his job. Owners of a number of small stores were threatened by union drivers for large distributors with having their windows smashed if they did not cease buying from independent dealers.

Tinley writes of labor unions in California:[84]

> They have opposed the introduction or extension of new methods of distribution (for example, store selling of milk), which may involve a decrease in the number of delivery men employed. They have also tended to oppose the reorganization of routes aiming at an increase in the number of packages carried per route. . . .

Bottle exchanges have been used as a means of enforcing cooperation among distributors. Milk is still largely delivered in glass bottles. In every good-sized city there is a bottle exchange to get bottles back to the companies whose name they bear. An investigation in Chicago showed the bottle exchange to be controlled by the large distributors. If they should decide to put pressure on an independent, his bottles fail to come out of the exchange. He loses his investment in his bottles and as a consequence finds it impossible to carry on. Should this obstacle persist, it will tend to force a rapid shift to paper containers even though they should still be more expensive than glass containers under those circumstances where losses can be kept to a minimum.

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[83] *The Price of Milk, op. cit.,* p. 19.
[84] *J. Farm Econ.,* February, 1939, p. 305.

In stepping up the enforcement of the Sherman Antitrust Act, milk distribution has not been overlooked. An outstanding case has been that in the Chicago area in 1938. Arnold writes: "There we found a combination of farmers, large dairy companies, a labor union, and members of the Board of Health, was forcing upon the poor a luxury system of distribution."[35] Before the case opened, milk could not be had without some risk[36] at less than 13 cents a quart. When the indictment was upheld in the U. S. Supreme Court, milk dropped in price to 8½ cents a quart with store delivery. Arnold writes: "By eliminating these restraints of trade, consumers of Chicago were saved about $10,000,000 a year."[37]

This case was finally settled by a consent decree by which agreements were entered into by several parties. Bartlett summarizes this consent decree:[38]

> The Milk Dealers' Bottle Exchange was prohibited from:
> - delaying or refusing to return milk bottles or other containers to distributors owning them
> - giving certain distributors services in collecting and returning bottles not given to other distributors
> - charging excessive fees. . . .
>
> The main provisions applying to the Milk Wagon Drivers' Union were that it might not:
> - compel distributors to pay or to charge consumers any price fixed or advocated by the union or other distributor
> - prevent distributors from selling to or soliciting customers of other distributors
> - hinder the sale of milk through stores, milk depots, vending machines, vendors or others
> - deny membership to qualified drivers because their employers do not pay or charge prices fixed or advocated by the union or by others
> - hinder the transportation of milk into Chicago, or its sale and distribution within the city
> - use coercion to compel prospective independent distributors to acquire the business of existing distributors before being permitted to go into the milk business in Chicago.

Edwards reports:[39]

> In some places it appears that outright collusion to fix prices is responsible for the size of the distributor's margin. In New York

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[35] *The Bottlenecks of Business, op. cit.*, p. 192.

[36] Gangster methods, in order to check competition, have been common in the Chicago area.

[37] *Ibid.*, p. 194.

[38] *The Price of Milk, op. cit.*, pp. 116, 117, 118.

[39] C. D. Edwards, *Food Processors and Antitrust Laws*, speech, Nov. 7, 1941.

> City an indictment against Sheffield, Borden, and other companies affiliated with National Dairy Products or Borden charges that the defendants agreed upon wholesale prices and compelled other distributors to observe these prices. In 1938, as a preliminary to the broad food investigation, a federal grand jury in Chicago indicted the Borden Company and various other dairies on various charges, one of which was the fixing of the price of fluid milk in Chicago. In 1940 these companies consented to a decree which enjoins them from such price fixing. Complaints we are now receiving from various cities throughout the country charge that recent price increases were collusively arranged.
>
> At least as important as direct price fixing are conspiracies among dairy companies to prevent the introduction of new methods which offer promise of reducing the cost of distributing milk and thereby reducing the price. . . . A local dairy [in one small city], realizing that a stop to deliver one quart of milk costs as much as to deliver more than one, announced a price schedule which offered a substantial reduction upon additional quarts in a single delivery. Thereupon, Beatrice Creamery Company and other dairies and handlers agreed with a local of the truck drivers' union to prevent the delivery of this low priced milk by strikes and violence, by cutting off supplies of milk to the offender, and by fining each union member who accepted a transfer of a customer's account. Trial of this case resulted in a conviction and in jail sentences which were suspended upon payment of fines.

Official Control of Milk Prices

Federal control of milk prices dates from 1933, when the Agricultural Adjustment Administration introduced minimum prices, both to farmers and to consumers. The effort to set prices to consumers was soon abandoned, and price fixing in the federal program was limited to farm prices.[40]

Three criticisms of the A.A.A. milk-marketing agreements are commonly made: (1) Milk production on farms is at times restricted; (2) In the price schedule set up, the price paid for market milk is set too high and as a result too much of the milk is forced into manufacturing uses;[41] and (3) The prices which are set are not sufficiently flexible. In order

[40] Cities where federal marketing orders are in effect include: San Diego, Cal.; Denver, Col.; Washington, D. C.; Chicago, Ill.; Fort Wayne and La Porte, Ind.; Dubuque, Ia.; Quad Cities, Ia. and Ill.; Topeka, Leavenworth, and Wichita, Kans.; New Orleans and Shreveport, La.; Boston, Fall River and Lowell-Lawrence, Mass.; Battle Creek and Kalamazoo, Mich.; Twin Cities, Minn.; Kansas City and St. Louis, Mo.; Omaha, Neb.; New York, N. Y.; Cincinnati and Toledo, Ohio.

[41] In some milksheds milk is forced into butter production even though the cost of producing milk for this use is lower outside than in the market milk areas.

to remedy this last defect, Bartlett proposes that the price paid for market milk be tied to the price of butterfat, which is determined competitively for the country as a whole. A premium over the butterfat price would be paid to cover the extra cost of producing milk to be sold in bottles.

Many states have set up a milk-control board. These boards usually are instructed to set minimum prices to both farmers and consumers. The criticisms which apply to minimum price to farmers under the A.A.A. marketing agreements are equally true of many rulings of state control boards.[42]

The action of some state control boards have been such that distributors' monopolies have been reinforced rather than reduced. Retail prices have been set in many cases in such a way that inefficiency has been promoted and unnecessary services have been frozen into the system.

Mortenson, in his study, *Milk Distribution as a Public Utility,* states:[43]

> Little attention has been given by these (price fixing) boards to studies concerning marketing efficiency, methods of reducing costs, and ways of narrowing margin of milk distribution.

Policies, procedures, and outcomes differ from state to state. One study reports five cases of state milk control. In Wisconsin: "The authorities have apparently set prices as high in relation to this goal (full cost of production) as they thought could practically be maintained with whatever control of sales volume the local cooperatives were able to achieve." In Oregon "prices of fluid milk are apparently set at the most profitable level, given rigid control of entry to the market and a scheme of payments . . . that discourages expansion of production for the fluid milk market." In Indiana the administrative agency acts largely to enforce "the prices determined by bargaining between cooperatives and distributors, limiting entry to fluid milk production whenever there is danger that new entrants would render these prices difficult to maintain." "In 1937 New York adopted the general principle of encouraging machinery for collective bargaining of prices and supervising this process."[44] In California some mention is made of encouraging efficiency in distribution. "In other States standards are vague and the aims seem to have been merely to ensure adequate margins so as to discourage cutting producer prices."[45]

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[42] States that have milk-price-control laws (April, 1941) include: Alabama, California, Connecticut, Florida, Georgia, Indiana, Louisiana, Maine, Massachusetts, Montana, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, Wisconsin.

[43] *Op. cit.*, p. 9. The following results, he believes, lead to an overstatement of distribution costs (p. 11): (1) duplication of delivery; (2) bad debts, bottle losses, and cost of collecting accounts; (3) overvaluation of capital; (4) excess salaries and bonuses; (5) some inefficiency in management.

[44] New York since 1937 has not set retail prices.

Failure to promote efficiency in some instance has been due in part to the fact that a board has been instructed by the authorizing act to base distributors' margins on average costs. If this is done the cost of the inefficient distributor has the same influence on the margin as that of the efficient distributor, and distributors' costs are known to vary widely.

The California law, however, states that the Director of Agriculture must base his determinations largely upon what he finds to be necessary costs, including a reasonable return upon necessary investment, of reasonably efficient distributors and retail stores. This information is to be collected by impartial audits and surveys of a representative number of distributors and retail stores in each marketing area.

Tinley, reports that:[46]

> In the three marketing areas in which resale-price orders are effective, prices to producers are the highest in the state, and retail home-delivered and store prices to consumers and retail distributors' margins are the lowest in the state.

A milk-control board in order to simplify its task may ignore some service differences that in a competitive system express themselves in price differences. It may, in addition, be influenced by those who want to check the introduction of a low-cost service. In some cases the board is prohibited from allowing certain price differences. For example, the Massachusetts law specifically forbids the granting of quantity discounts in the sale of milk.[47]

Rulings of milk-control boards sometimes have narrowed price differentials and at other times have widened them. In Boston, for example, the usual price difference from 1926 to 1933 between door and store milk was 2½ cents. The Massachusetts Control Board in 1934 reduced the difference to 1 cent. In Philadelphia, on the other hand, the price difference between store and door milk was increased by the control board.

The failure of milk-control boards to promote efficiency has brought widespread criticism. *A Brief Prepared by the Consumers' Milk Committee in the Arlington-Alexandria Area of Virginia, February, 1941, on the Regulation of Retail Milk Prices* outlines the threat to consumers' interest in retail-price regulations:[48]

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[45] Temp. Nat. Econ. Comm. Mono. 32, pp. xxiii–xxiv.

[46] *Public Regulation of Milk Marketing in California,* 1938, p. 148.

[47] R. W. Bartlett, *The Price of Milk, op. cit.,* p. 49.

[48] Quoting from address by D. E. Montgomery, *Modern Trends in Milk Marketing from the Consumers' Viewpoint,* U. S. Dept. Agr., Consumers' Counsel Division (mimeo.), c.s.-145, September, 1941.

> The effect of retail regulation upon consumers is stated to be (1) to raise prices, (2) to prevent new methods and economies in distribution from being instituted, and (3) as a result of higher prices, to reduce consumption of fluid milk.
>
> The effect on producers is stated to be to lower the blend [price] which they receive due to reduction in the use of milk in the higher-value classifications.
>
> The effect on distributors is said to be (1) to help dealers with advertised brands in their competition with small dealers who are not allowed to sell their lesser known brands for less, and (2) because of the inducement furnished by greater than normal margins, to encourage too many new firms and excessive investment in the industry with the result that distribution costs tend to be raised by the reduction in volume of business per firm.

This committee contended that "Retail price fixing is not necessary to protect producer prices. Experience of U. S. Department of Agriculture proves producer prices can be fixed and maintained without retail price fixing. Experience of States of New York and Louisiana proves likewise. Problem of enforcing retail prices may even divert attention from primary job of enforcement of producer prices."

A study has been made by the Consumers' Counsel of the A.A.A. on retail prices in several cities: "Usable data were obtained from 250 cities in 75 of which resale prices were controlled by State authorities. The prevailing delivered prices at that time ranged from 10 to 17 cents per quart in the cities under control, and from 8 to 15 cents in the others. Average prices were 12¾ cents in the former and 11$\frac{1}{16}$ cents in the latter." "Resale price control tends to reduce or eliminate the opportunity of consumers to save money on milk by foregoing the convenience of home delivery. . . ." It tends also "to reduce or eliminate the opportunity of consumers to save money" by buying milk in 2 quart or 4 quart rather than 1 quart containers.[49]

What Kind of Price Control Is Desirable?

There seems little doubt that the extent of monopoly control existing among distributors in the milk industry calls for state intervention of some kind. Farmers who for the most part operate on a small scale need to be protected from the price-depressing tactics of large-scale distributors who may combine to depress farm prices and cheat farmers through the manipulations of complicated pricing of milk for various uses. Consumers need some protection from producers' organizations that would restrict supplies of fluid milk, and even more protection from distributors and labor unions who check price competition and force consumers to pay for "unnecessary" services. But what form should protection take? The fixing of prices to farmers, plus prohibition of any restriction of supply, plus active enforcement of antitrust legislation, may be the answer.

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[49] *Ibid.*

Some people have proposed that milk distribution be made a public utility—a monopoly franchise given and prices regulated by a commission. In this way house-to-house delivery could be continued without the waste arising out of the duplication of several delivery wagons on one street. The wisdom of such a move is questioned by many. Bartlett feels that the voluminous reports of the Federal Trade Commission indicate that the regulators of public utilities "as a whole have been famous for their infamous disregard of consumers' interests."[50]

Concerning the organization of milk distribution as public utility, Gray writes:[51]

> While I believe the course can be justified theoretically on legal, economic and social grounds, I am extremely dubious of the proposal. We have had public utility regulation of railroads on a national scale for over 47 years, and state regulation of other public utilities for over 25 years. Yet what has been the result. Endless litigation and public controversy, great waste of money and effort by public bodies and private corporations, continued inefficiency of management, excessive rates, scandalous financial manipulation and persistent public dissatisfaction. By and large the public utility industries, which for many years have been subject to public regulation, represent one of the most unsatisfactory segments of our national life. So general has been the recognition of this fact that many people have apparently given up all hope of effective regulation under the public utility doctrine. . . .

There appear to be two alternative methods of exercising the public control over retail prices: (1) check collusion among distributors and their employees that stifle competition in retail price setting; and (2) fix retail prices. Even though laws called for prices to be set according to costs of efficient dealers, with proper regard for the variation in service rendered, and at the same time if public officers, intelligent and socially minded, could be found to investigate and make decisions, effort devoted to checking collusion probably would bring greater returns. Without a great deal of disturbance it should be possible greatly to reduce agreements as to services to be provided and prices to be charged for milk which is sold in various ways. In other words, agreements which in many cities have served to check the introduction of low-cost methods would not be permitted. From the data which are available it would seem that such action would increase the proportion of the total milk supply sold through stores and that a considerable price difference between store and door milk would prevail as well as price differences due to services of stores, volume of milk taken, and type of container used.

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[50] *The Price of Milk, op. cit.,* p. 42.

[51] Quoting from Bartlett, *The Price of Milk, op. cit.,* p. 42.

The regulation of prices to farmers is in a very different category from regulating prices charged by distributors. When both prices paid to farmers and those charged by distributors are set, distributors' margins are automatically set. If they are higher than are necessary to cover the cost of efficient operation, the total price of milk is likely to be higher than is necessary. This high price limits the amount of milk which consumers feel they can afford and tends to depress farm prices of all milk, even where that sold as fluid milk is price fixed. Furthermore, high margins to distributors provide no self-correction. They do attract more distributors, so that the total volume of milk sold is divided among a larger number and a greater excess capacity develops. As this happens, the per unit costs of distributing milk tend to rise. On the other hand, high prices to farmers, that is, those greater than the costs of efficient production, if accompanied as usual with freedom to expand production, bring their own downfall in the form of larger supplies of milk which in time tend to flow into the market. They put pressure on prices to come down. This is, of course, only true if there is no restriction on supplies coming into the fluid-milk market.

Similarly, great or even greater savings are possible through store sales than through a unified house-to-house delivery system. Thus there seems little reason to consider the desirability of milk distribution's being a public utility any more than declaring food retailing in general to be a public utility. Every effort should be made, however, to encourage low-cost methods of distribution. This obviously cannot be done with one price being paid for milk, whether it is delivered at the door or sold in stores. Nor can it be done with one price of milk in stores. There must be price differences among grades, between stores in low- and high-income districts, and between cash-and-carry and delivery stores within any one district. Prices should vary with size of container used, perhaps also with type of container, whether paper or glass, and with amount purchased at any one time.

The setting of minimum retail prices, permitting such variations, is highly complex and would probably never be fully achieved by any milk-control board. It might be possible, however, for a control board to require price differences greater in variety and extent than had occurred when distributors were allowed to get together and agree concerning practices and pricing. The possibilities of checking such collusion have not yet been fully explored. However, if distributors' margins are to be set, it appears highly important that the board be instructed to base them on the costs of the very efficient firms in the performance of necessary services only, that it be authorized to make continuous investigations and to revise margins from time to time.

Municipal Milk Distribution

Duplication in distribution can also be avoided if the city owns and operates the plant that does the distribution. This system is in use in Tarboro, North Carolina. It was studied in 1936 by Nixon and Reed. They report:[52]

> All things considered, it appears that the citizens of Tarboro believe their milk plant to be a good investment and that under no circumstances should it pass to private hands. This position seems to be justified on the basis of survey data: products of high quality are obtainable at reasonable cost, and no evidence was found indicating any of the oft-alleged wastes of public enterprise.

Consumers' Organizations

Controversy concerning monopoly elements in and official price control of the fluid-milk industry has become so keen as to bring the establishment of special consumer committees to study and formulate policies, for example: Milk Consumers Protective Committee in New York City, the establishment of which was due largely to efforts of Consumers Union; and the Greater Boston Consumers Committee on Milk. The latter was established in order "to limit the powers of the Milk Control Board in fixing prices consumers must pay" and "to organize consumers to plan the establishment of a lower cost system of distribution."[53]

Bread and Butter reports that the Milk Consumers Protective Committee of New York City was in the main responsible, early in 1942, for turning a demand for a price increase into a price reduction.[54]

The New Jersey Consumers Council in January, 1942, appealed the decision of the milk-control board to increase milk prices by one cent.

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[52] A. J. Nixon and O. M. Reed, *Municipal Milk Distribution in Tarboro, North Carolina,* U. S. Dept. Agr., A.A.A. Division of Marketing and Marketing Agreements—Dairy Section, 1938, p. 3.

[53] W. K. Gabler, *Labeling the Consumer Movement,* Appendix III (mimeo.), prepared for the American Retail Federation, p. 11.

[54] Vol. 2, Mar. 20, 1942.

Later the council petitioned the legislature "to abolish the Milk Control Board on the ground that it does not serve the public interest." [55]

In a city in Maryland, a group of consumers formed a milk-buying club. Systematic study revealed that all grades and brands of milk available were of satisfactory quality. The club designed that group buying might bring benefits. It called for bids for a specified minimum quantity of milk per day, and a contract was made. Attempts were made by the other distributors to discredit the milk of the distributor who contracted to supply milk to the members of the club.[56]

In a few instances consumers' cooperatives have been organized to perform the service of distributing milk. There is, for example, a Consumer-Farmer Milk Cooperative in New York City. Early in 1942 it did not yet appear to have gotten beyond the stage where its existence might be threatened by price war, directed at its elimination.

[55] *Bread and Butter,* Feb. 27, 1942.

[56] *Consumers Union Reports,* June, 1940, p. 21.

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The Agricultural Adjustment Program

Many aspects of agricultural policy have already been considered, for example, the food stamp plan, the school-lunch and other surplus-disposal programs, and the recently launched advertising campaigns designed, its sponsors hope, to increase the consumption of milk, meat, etc. Marketing agreements were briefly commented on in Chapter 29. Interstate trade barriers of various sorts have been examined. The development and promotion of grading, a condition important to more orderly marketing, were considered in Chapter 26. Efforts to increase family food production for home use by the Farm Security Administration and other organizations were discussed in Chapter 9. Here we want to consider briefly some aspects of the federal agricultural adjustment program with special attention to food production.

From time to time it may be necessary for a government to aid in adjusting an industry. A word about adjustment programs in general seems to be appropriate. Such programs usually involve controls and subsidies of various kinds. They may be dominated by one or more objectives. In the first place, a government may step in to direct the course of an industry in order to reduce widespread disorganization brought about, for example, by a marked and sudden change in market and production conditions. Emergency controls of many kinds and the provision of relief to people in distress, because of a sharp fall in income, may be necessary in order to eliminate panic conditions, which in themselves may be engendering widespread disorder. After a short period, wherein certain types of change are entirely checked, a condition permitting adjustments may be sought. In shaping the direction of change, efforts should be directed, it would seem, first, to reducing and finally eliminating all extreme poverty and providing at least a minimum standard of living for all families and people in the industry; second, to securing the optimum use of productive resources; and, third, to getting the industry as far as possible on a self-regulating basis. It seems highly probable that these objectives are looked upon as socially desirable by a large part of the population. Adjustment programs, however, may be dominated by another objective, namely, the maintenance of the status quo of property values and of former returns to at least a part of those people established in the industry. Such an objective may prevent the full use of productive resources and may also interfere with efforts to reduce poverty.

Some Changes from 1920 to 1933, Affecting Agriculture

In order to get the proper perspective for discussing agricultural adjustment it is desirable to outline some important changes, occurring during the past twenty-five years, which have affected agriculture. Among them are the following:

1. A great expansion in crop acres occurred during World War I. High prices prevailed for many farm products, bringing a land boom and a high level of prosperity among farmers.

2. A sharp fall occurred during 1920 in the price of many farm products, bringing a collapse of land values, which in turn led to numerous bankruptcies as farmers found themselves unable to meet debts contracted during the boom years.

3. The period of the 1920's brought some stabilization in land values and some shrinkage in crop acreage. J. S. Davis believes that "American agriculture experienced a period of reasonably stable prosperity in 1925–29."[1] During this period, also, mechanization of agriculture, improved seed and breeding methods, and other changes increased the production per acre and per worker in agriculture, thus increasing the need for the migration of agricultural labor to urban occupations. A considerable migration of this kind did occur.

4. During the 1920's the foreign market for American agricultural products shrank for several reasons. In war-torn countries the end of the war brought the reconstruction of all industries, including agriculture; so there was less need than formerly for American food. Furthermore, America during the war had changed from a debtor to a creditor country so that former markets for agricultural products abroad could only be maintained if the United States accepted much more foreign products than formerly or greatly increased the loans which were made to countries wishing to buy American food. In spite of this changed financial relationship with other countries, a high tariff against products imported into the United States made it difficult for foreign countries to ship products here in order to secure funds with which to buy American foodstuffs. In addition, the desire for a food supply at home, in the event of war, led many European countries to strive for a greater measure of national self-sufficiency in food supplies. In order to encourage home production, tariffs on

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[1] *On Agricultural Policy, 1926–1938,* p. 242.

food were increased and foreign trade controlled through quota systems, which prescribed the quantities of foreign products to be admitted.

5. The depression, beginning in 1929, brought unemployment in American urban industries and a cessation of American lending abroad. Both factors reduced the demand for American foodstuffs. A considerable reduction in retail food prices occurred. Rigid processing and distributing margins resulted in the retail-price decline, almost all being passed back to farmers. This brought a very sharp decline in farm prices. The prices of things farmers had to buy fell much less. In addition, taxes and payments on fixed contracts to be paid by farmers remained for several years at old levels.

6. Unemployment in cities checked farm-urban migration. With this outlet for surplus people clogged, the farm population, because of a relatively high birth rate which continued in spite of very low income, came to constitute a larger part of the total population.

7. The existence of "surplus" food was not confined to the United States. An international conference met to plan the restriction of wheat production. State funds in many places were provided to destroy foods. As well as acreage being restricted and little pigs and sows being destroyed in the United States, great piles of coffee were burnt in Brazil and sheep carcasses were burnt in Chile.

The Development of a National Farm Program

A postwar break in prices came in 1920. The years that followed were marked by a growing demand for something to be done about the "farm problem." Among other things, "equality" for agriculture was demanded. This, it was proposed, should be achieved through guaranteed prices, surplus control, disposal schemes, and other means. Bills, for example, were introduced in the national legislature to maintain, at a specified level, prices for those farm products used in this country. Any surplus available, it was planned, would be dumped abroad for what it would bring. The possibility of serious repercussions on international trade checked actions of this type. Many aspects of the agricultural situation were studied. Improvements in line with traditional action, such as the promotion of cooperative marketing, better credit facilities for farmers, and a better market news service, were effected. In 1929 the Federal Farm Board was established, its major purpose being to encourage cooperatives and to promote stabilization of prices. The sharp drop in price which came during the fall of 1929 concentrated the efforts of the board on price stabilization. To this end loans were made so that commodities could be held in storage by cooperatives rather than sold, and the board made some direct purchases in an effort to sustain prices. At the same time, it advocated reduced production. This was done even though it had no power to effect a reduction. Prices of farm products continued to fall. The result was heavy loss to the board, which had been financed by the federal treasury.

The impact of the depression on agriculture brought much hardship. Many families lost the savings of a lifetime. Widespread unrest and riots occurred; violence accompanied foreclosures; strikes, milk dumping, and martial law in formerly peaceful communities made it apparent that further government intervention was necessary to remove or to mitigate the causes of panic and disorder.

By declaring a moratorium on farm mortgages, foreclosures were temporarily halted. Agricultural acts followed each other in rapid succession, legalizing one action program after another. The first Agricultural Adjustment Act, permitting processing taxes and contracts with farmers to reduce crop acreages, was later revised and supplemented in many ways.[2] The disorganization that marked the period 1932–1933 is now only a painful memory. Many agricultural leaders are at present apprehensive about the impact of the World War II, bringing boom and later a collapse from overexpansion.

Major Purpose of Agricultural Adjustment Program

The agricultural adjustment program has had many aspects. It includes, for example, attempts through the Farm Security Administration to rehabilitate, on farms, families who for one reason or another are having extreme financial difficulties; to increase farm ownership and to improve tenant-landlord relationships; to improve methods of farming so that fertility is conserved and in some measure restored; to adjust farm taxation. In addition, an effort is being made to influence both the demand for and the supply of foods. Attention is here primarily directed to efforts to affect supply. And contraction rather than expansion of supply, until 1941, has held the center of the stage.

Attempts to restrict supply have been of two types: (1) to shift agricultural labor to other types of production and to shift "marginal" farm acres into forest or to shift land from crops of which we have an "oversupply" to those for which consumption may be more readily expanded; and (2) to limit the supply of various foods produced or marketed, even if in so doing resources are allowed to remain idle or products that have been produced are destroyed or allowed to go unharvested. In order to induce farmers to cooperate in restricting supply, a series of controls have been devised, including acreage allotments and marketing quotas. Farmers presumably are to be rewarded for any loss because of reduced sales by the possibility of higher prices due to the restriction program, by payments, supposedly for soil conservation, by loans under the ever-normal granary program, and in addition by parity payments to those who cooperate.[3] These controls are aimed at raising agricultural income.

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[2] For description of agricultural programs see *1940 Yearbook of Agriculture.*

A gesture toward protecting consumers' interests has been made by providing a consumers' counsel. In spite of integrity, intelligence, enterprise, and earnestness of purpose, the protests and recommendations of this counsel appear to have affected policy only slowly and very little, if at all. In 1942 the Consumers' Counsel of the A.A.A. was shifted to the Agricultural Marketing Administration, another branch of the U. S. Department of Agriculture.

Basis of Appraisal

In appraising any part of the agricultural adjustment program several questions need to be asked: (1) Is the program necessary in order to prevent change of a disrupting kind? (2) Does it make for more efficient farming practices? (3) Does it serve to reduce poverty? (4) Is it to a large extent being used to maintain status quo? (5) Does it fail to take sufficiently into account the shrinkage necessary in some parts of the agricultural plant if productive resources as a whole are to be used efficiently? Most people will agree that an emergency condition did exist in 1933. But in 1938 the Agricultural Adjustment Act introduced even stronger control measures. There was certainly little or no basis for them on the grounds of emergency. Their merit, if such exists, must be sought in their contribution to other social objectives.

Excellent descriptions and analyses of various parts of the farm program are to be found in many publications. A comprehensive discussion and a detailed analysis are beyond the scope of this book. Before appraising any part of the program, various parts of the program, however, will be briefly described.

Soil Conservation

The Soil Conservation Service that encourages conservation through research, demonstrations, and cooperation with soil-conservation districts appears to be doing something to check erosion and to restore fertility. It seems highly probable that it contributes something to better farming methods.[4]

[3] For description of agricultural programs in general see *1940 Yearbook of Agriculture.*

[4] When such facts as the following are presented, a strong public reaction occurs in favor of using public funds to subsidize soil conservation: "Of the total

The Soil Conservation and Domestic Allotment Act is, however, in a very different category. It provides payments to farmers if they agree to carry out certain farming practices which presumably serve to restore or to maintain soil fertility. But to be eligible for these payments a farmer must agree to adjust his acreage, reducing crops for which a condition of surplus has officially been declared. Acres withdrawn from wheat may be used to produce "non-soil-depleting" crops. In spite of its title it is a well-known fact that the Soil Conservation and Domestic Allotment Act has been aimed largely at crop control and at the provision of subsidy. The public, being impressed with the need for soil conservation, was willing to favor the use of public funds for that purpose. But the act in the main was an attempt to find farm-subsidy legislation acceptable to the Supreme Court. Thus the avowed objective of soil conservation actually became a screen or cover for other purposes. It is worth while noting that so far as the farming practices actually do improve the soil, production in the future will be greater rather than smaller. Tolley, for example, points out:[5]

> the farm plant is usually improved and potential yields are increased. This means . . . that unless some new consuming power is tapped, the control problem will become increasingly difficult as the program is continued.

The Ever-Normal Granary

The popular appeal of "an ever-normal granary" to equalize from year to year the supplies moving into the market had a wide popular appeal following the drought years of 1934 and 1936. Wheat and corn, and, through the latter, livestock also, are the major foods affected. A program designed to provide an ever-normal granary and do nothing else would operate over a period of years—years having normal, short, and large supplies—so that total supplies of the entire period are moved into the market. In years of surplus crops, loans would be made to hold over that part of the crop that could be moved to advantage in years of short supply. In years of short supply no loans would be necessary and stocks on hand would be depleted. Larger and larger supplies year after year would not be built up.

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cropland in the United States, 61 per cent is subject to continued erosion or is of a quality too poor to be profitably farmed. Over half of this area is subject to serious damage by erosion." U. S. Dept. Agr., *Achieving a Balanced Agriculture*, 1940, p. 44. "Already destructive farming and grazing have ruined or impoverished more than 100,000,000 acres of good crop land and impaired an additional 200,000,000 acres. In some degree erosion has affected more than half the land surface of the country. . . ." *1940 Yearbook of Agriculture*, p. 375.

[5] *1940 Yearbook of Agriculture*, p. 1171.

The operation of an ever-normal granary program obviously depends on the amount of the loan granted by the government on the grain. Corn, for example, is sealed on the farm. The administrators of the program decide on a sealing price, which in turn determines the amount of the loan that will be granted. Tolley, Chief of the U. S. Bureau of Agricultural Economics, writes:[6]

> The commodity loan is essentially a device to stabilize prices. Loans can be set at rates that will result in undue accumulation of stocks. On the other hand, the loan rate may be fixed at such a level that it will offer genuine support in years when supplies are excessively large; the rate also may be restrained from following prices up in years when supplies are reasonable.

The droughts of 1934 and 1936, unprecedented in their severity, practically eliminated the stocks that had been accumulated from earlier years. From 1937 to 1940 surplus stock of corn, for example, grew larger and larger. In spite of this fact farmers showed little inclination to favor a sealing price that would check further accumulation. Conditions growing out of World War II are rapidly eliminating the surplus which was on hand at the beginning of 1941. Experience to date would indicate, however, that administrators of the program are not inclined to adhere to the basic purpose of using the commodity loans as a means of evening the flow of products into the market. They yield to the pressure to use it as a means of getting higher income for those cooperating. Schultz is of the opinion that "The misuse of the commodity loan and storage technique is likely to discredit all storage operations and accordingly to preclude the use of the technique where it has an important contribution to make."[7]

Acreage Allotments

The ever-normal granary program provides for the commodity loans, described above, and also for acreage allotments. Farmers may be asked to agree either to contract or to expand their acreage—although at the present time acreage allotments, in the minds of most people, and justifiably so, still connote restriction. To check further increase in the surplus that has piled up because of the high sealing price, that leaves the product in storage rather than putting it on the market, acreage reduction may be required for all who are to get loans. Additional benefit payments may be made to those who cooperate in reduction.

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[6] *Ibid.*, p. 1172.

[7] "Economic Effects of Agricultural Programs," *Proc. Am. Econ. Rev.*, Vol. 30, February, 1941, p. 143.

A restrictive program of this type is denounced by many because it represents an attempt to maintain status quo and an unwillingness of those in certain lines of production to recognize that resources should be shifted to other uses. Other people acknowledge that the purpose of the program is open to such criticism, but they point out that restrictions imposed actually do not restrict production in any real sense. Acres taken from corn, for example, are used to grow other types of feed, many of which are in the non-soil-depleting class. These may be substitutes for corn in livestock feeding. The net result is that the total supply of feed is much the same as before. In this way the restrictive aspect of the program is excused because of a failure to accomplish its avowed purpose. Similarly, contracts to reduce wheat acreage, at a time when wheat prices were fairly high, lead to an expansion in wheat acreage in regions not important for wheat and where contracts are not in force. Acreage restriction may also lead to more intensive cultivation on the most fertile acres of the farm; so the volume of the product remains as large as formerly.

J. S. Davis writes:[8]

> Production control . . . seems to me an unwise agricultural policy. Applied under voluntary procedures, it is comparatively ineffective but is disturbing to normal regional relationships and readjustments. Applied coercively, even with the approval of the farmers directly concerned, it tends to be carried too far for their own good or that of the nation, as well as to disturb the course of wholesome economic readjustments.

A.A.A. Marketing Agreements

Authority to undertake marketing agreements was given in 1933. They have been used chiefly for dairy products and for some specialty crops, especially vegetables, tree fruits, and nuts. Although the agreements are voluntary for the industry, all shippers are required to comply once an agreement is drawn.

> A program is initiated only on the demand of the industry and is put into effect only on a favorable vote of two-thirds of the producers, after public hearings of all interests affected. It combines voluntary and regulatory control to govern the handling . . . of the commodity. There are three types of control.
>
> (1) The volume of shipments may be controlled (*a*) to the entire market for the season; (*b*) by diverting supplies from one

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[8] *On Agricultural Policy, 1926–1938,* p. 392.

> outlet to another . . . (*c*) by regulating the rate of flow to the market in order to smooth out temporary gluts and scarcities and make prices more nearly uniform.
>
> (2) Grades and sizes may be regulated, and certain of these kept off the market for a given period.
>
> (3) The shipper may be required to post his prices and not to quote or sell at prices different from those in his schedule. . . .
>
> Regulations limiting the total volume shipped over the season have been the most effective in improving grower prices and were widely used in the earlier years of the marketing-agreement programs when the consumer purchasing power was at low levels. Regulation of grades and sizes predominates at the present time.[9]

Marketing agreements have bestowed on small groups important restrictive powers, with little or no check being exercised by any agency representing the consumer or the public interest; and marketing agreements are exempt from the antitrust laws. If the group, however, carries on restraint of trade beyond their legal powers, the Antitrust Division may seek an indictment.

The major power in the marketing agreements appears to rest with the handlers of produce. There are those who suspect that the major benefits from marketing agreements have been retained by distributive agents and that very little trickles back to the farmer. Evidence to establish this as a fact is, however, not available. There seems little doubt, though, that both the short-run and long-run effects of marketing agreements are very much in need of being investigated. The objectives of orderly marketing, of preventing gluts in some markets with shortages occurring in others, and of developing a sound storage program to spread the product out over time are socially desirable objectives. Excluding products from the market in order to raise prices is contrary to public interest when the price, for example, is sufficient to encourage equally large production the next year.

Power to withhold low-grade products from the market may penalize low-income consumers more than any others. Waste is eliminated, of course, by the removal before shipping of culls that will later be discarded in the central market or by a wholesaler. But any further reduction in quantity by eliminating low grades tends to raise the price to be paid by low-income families more than it does the price paid by high-income families.[10]

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[9] *1940 Yearbook of Agriculture*, p. 54.

[10] For discussion of this point see M. P. Rasmussen, "Consumers' Incomes and Demand for Certain Perishable Farm Products," *J. Farm Econ.*, Vol. 21, February, 1939, pp. 145–55.

Parity Price and Income

Benefit payments, beyond so-called payments for real or fictitious soil conservation, are frequently described as parity payments. Concepts of both parity income and parity prices are used. Parity income has been defined by Congress as the purchasing power of the net income per person on farms equal to that of the per capita net income of persons not on farms, as prevailed in the five years immediately before World War I. Fair exchange value or parity price has been defined by Congress as a price level that will give agricultural commodities purchasing power, in terms of the things farmers buy, equivalent to the purchasing power of agricultural commodities in the five years before World War I. Benefit payments sufficient to achieve either of these objectives are open to many criticisms.

J. S. Davis, for example, points out that "*wholesale prices* of farm products in the United States were relatively higher in 1909–14 than in any period of equal length before, at least in more than a century."[11] Furthermore, relative difference in the prices of any two industries is not a measure of disparity. For one thing, changes may have occurred in relative costs of various products.

C. C. Davis writes:[12]

> In many instances the attainment of parity prices will bring undesirable results, such as impeding the normal consumption of farm products and even reducing the net income of producers below a fair level.

J. S. Davis states:[13]

> I believe it is a very serious mistake to propagandize an economic fallacy of this kind (parity price), and that the inculcation of this fallacy tends to cumulatively unwise measures. If it were possible to redefine "parity prices" in terms of an average level to which actual prices tend to conform, changing with changes in relative costs and with shifts in demand, the damage would be minimized; but political expediency almost inevitably forces definition of the concept in excessive terms. Attempts to secure and maintain prices called "fair," but in reality uneconomically high, tend in turn to create and intensify maladjustments in production. . . . In certain fields, notably feed crops, dairy products, and fruits and vegetables, the national interest calls for policies directed toward lowering costs rather than raising prices; and except for the short run I believe the farmers' interest lies in this direction also.

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[11] *On Agricultural Policy, 1926–1938,* 1939, p. 235.
[12] *1940 Yearbook of Agriculture,* p. 320.
[13] *Op. cit.,* pp. 389–90.

Many objections arise to formulating policies for agriculture in terms of parity income. For one thing, data on income are difficult to determine, for example, income received from work off the farm, living received from the farm, facts concerning purchasing power of net money income. There is a failure to recognize the importance of relative income in bringing about adjustments needed. Agricultural leaders who urge parity income fail to recognize an inherent absurdity. The period 1909–1914 was one of relative prosperity for agriculture. If each person in agriculture is now entitled to the income ratio that prevailed then, there is no moral reason why every other major industry should not stake out its claims for income on the same basis. Thus each group would select the period in which its relative position would be at the maximum or close to it and would enter, on this basis, a claim for parity of income. Such claims when totaled would greatly exceed total income. Needless to say, the share of every one cannot be greater than the total.

The Disposition of Benefit Payments

In appraising agricultural policy it is important to inquire about the disposition of various payments among farmers in general. In examining this disposition two functions of income in an economic system should be borne in mind. In the first place, income payments should be high enough to attract enough workers to ensure a large enough volume of products. This cannot be a reason for payments being made while a surplus exists. In the second place, income is necessary to provide an adequate scale of living for people in the industry. The question thus arises as to whether various payments serve to reduce or eliminate poverty among agricultural families. Evidence points to the bulk of the payments' concentrating among the relatively high-income farmers. For example, the 1939–1940 Iowa Farm Sample Survey obtained data on government payments. Iowa farm operators received payments as follows:

Net Income	*Average Government Payment*
Upper third	$350
Middle third	179
Lower third	152

Schultz, in commenting on these data, says, "Government payments as they are now being allocated do not effectively get at the income problem."[14] These facts would indicate that measures taken to restrict supplies in order to raise price are not effective means of reducing poverty. In fact, benefit payments appear to perform no function of value to society as a whole.

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[14] T. W. Schultz, "Economic Effects of Agricultural Programs," *Proc. Am. Econ. Rev.*, Vol. 30, February, 1941, p. 149.

Guaranteed Minimum Prices

In April, 1941, a major change of policy occurred. The U. S. Department of Agriculture, in order to encourage production, announced that it would support prices over the period ending June 30, 1943.

> Assuming continuation of existing price relationships and taking seasonal price variations into account, the Department will make purchases in the open market to support long term prices [Chicago basis] at levels approximately as follows: Hogs cwt., $9; Dairy products (basis of butter lb.), 31 cents; Chickens lb., 15 cents; Eggs doz., 22 cents. It was pointed out that these prices would be subject to the customary commercial differentials for market grades and qualities.[15]

For all the products for which price was guaranteed, an increase in demand was anticipated, because of rising incomes at home and the expanding food shipments to Great Britain.

Farmers plan production on the basis of existing prices and of anticipations gleaned from other indications of their market. To the extent that they rely on existing prices, the expansion of production, which takes time, tends to lag behind an increase in demand. The government can announce that demand in the future is certain to be greater and can advise immediate expansion of production. But farmers may want more tangible evidence of the kind of market which will await their products. When minimum prices are guaranteed, the state assumes some of the risk of producing the increased supply.

The possibility of regulating farm production on the basis of guaranteed minimums has been little explored. It has been recommended, for example, that the loan rate on such crops as wheat and corn be announced in advance of the crop year and that this rate constitute a minimum price which farmers can anticipate in making production plans. In this way some of the uncertainties confronting farmers would be eliminated. So far as wise use of resources depends on acting with knowledge, such a policy seems to have much merit; for the federal government has at its disposal extensive information of local, national, and international conditions bearing on future demand, and has some acquaintance with other products to which many farmers might turn their resources. The working of such a plan would depend on the steps taken when adequate reserves were on hand. The minimum guaranteed price might have to be dropped in order

[15] *Marketing Activities,* April, 1941, p. 21.

to discourage further accumulation, or various kinds of surplus-disposal plans might be evolved that would serve to maintain the price. The scheme thus allows considered scope for political pressure to be used as a means of securing income.

War Comes to American Agriculture

A great gulf separates 1933 and 1942. In spite of many farm prices zooming, the A.A.A. bureaucracy, which in a few short years became established and entrenched, found it difficult to adjust its psychology; its mental habits were fixed. Salvation such a short time ago had come, so it seemed, from restriction, and to that policy it clung. Even in the face of rising prices of corn and hogs, it feared to see corn released from storage and was reluctant to give up restriction of acreage in favor of an all-out program of production. It fought the release of great stores of wheat at prices which would make it economical for feed, even though no storage space was in sight for the oncoming crop of wheat. War brought price-control legislation. (See Chapter 31.) The effort of the farm block went a long way toward rendering price controls ineffective.

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Control of Food in Wartime[1]

WAR brings the need for widespread industrial reorganization. Many factors are responsible, not the least of which are the increased production of war materials and the expansion of the armed forces. Shortage of any product within a country may arise because new uses for it have developed and because exports must be expanded. In addition, shortage may arise because imports are cut off by the sinking of ships or because transportation facilities for food are disrupted, perhaps, while they are needed for other purposes. The reduction in imports of fats and oils, by the cutting off of trade with the East Indies was of major importance in 1942. Shortage of shipping space is affecting imports of coffee and sugar from the West Indies and South America. In areas where the fighting occurs, food supplies are likely to suffer extreme disorganization. All in all, it is not surprising, even in societies where free enterprise commonly prevails, that war and state control of food, along with other things, are companion pieces.

Control takes many forms. State monopolies may occur, or many or all of the stages in securing the product may be subjected to regulation of various kinds. Education to get voluntary cooperation in every instance is important. It is necessary to get cooperation in rationing and price fixing, to teach people to accept and to use substitutes, to conserve resources, and, for some families, to increase production for their own use.

In this discussion attention will be confined largely to three important objectives of control: (*a*) to regulate the supply of food, (*b*) to hold prices down, and (*c*) to achieve a "fair" sharing of supplies. Other objectives are likely to affect policy; for example, the desire to maintain status quo in various types of agriculture and in processing and marketing, to achieve equity in income distribution, and to minimize postwar reorganization. In considering the three objectives stated above, some attention will be given to the impact of these objectives on policy. It will be impossible here to do more than indicate some of the problems and the processes by which these things are achieved. America's experience in World War I is drawn upon. In addition, knowledge of existing business practices provides a basis for gauging the probable outcome of regulations imposed or practices considered. Space does not permit an exploring of all by-paths.

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[1] For discussion of the experience of Great Britain see George Darling, *The Politics of Food,* 1941; J. H. Richardson, "Consumer Rationing in Great Britain," *Can. J. Pol. Econ. Sci.,* Vol. 8, February, 1942; and International Labour Office. *Food Control in Great Britain,* Studies and Reports Series B (Economic Conditions), No. 35, 1942.

Controls To Regulate Volume of Food

Priorities on farm machinery, tires for farm trucks, and draft exemption because of farm employment are a part of the effort to maintain existing levels and even to increase the volume of food supplies. In fixing maximum food prices their effect on total food production must be considered. It may be necessary to permit some increase in price in order to retain the supply of labor in agriculture that is needed. In addition, the "relative" prices set for various foods are important. Attention may have to be given to increasing the production of those foods which are most economical. The maximum price of corn may be held down and that of soy beans allowed to soar because of an urgent need for increased production of oil which may be better provided by soy beans than by corn. In fixing maximum prices on cattle and hogs, a high relative price for hogs may be greatly favored because hogs are a more economical means than cattle for converting corn into fat, and, as convertors of certain types of feed, dairy cows may be favored over beef cattle.

The use of guaranteed prices in order to get an expansion of production has already been considered. This may be a more effective method than waiting until prices rise and trusting that this price rise will be anticipated early enough and interpreted correctly enough, in terms of the future, to induce the desired expansion in production. Direct subsidy also may be used as a means of getting farmers to expand the production of a given product in place of another or to get larger production in general. Subsidy may be used to expand production on high-cost farms only, none being provided for other farms. This type of subsidy has been important in Great Britain.[2]

Lowering tariffs and increasing import quotas may be an important way of alleviating some shortages, if adequate transportation facilities are available. Early in 1941 it might have been desirable to increase import quotas of canned beef from Argentina and, in addition, to admit frozen beef from those areas of Argentina which are free from "foot and mouth" disease.[3] By 1942 the extreme shipping shortage ruled out this method of increasing our meat supply.

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[2] A. S. J. Baster, "Control of Food Prices," *Studies in War Economics, International Labour Economics,* Series B, No. 33, 1941.

War, with increased scarcity of productive resources available for certain uses and greater demand for food as well as other things, increases the need for the elimination of restraints on production and on the marketing of products, such as have been permitted by and have occurred under A.A.A. marketing agreements. Even after war had started, and the magnitude of the task or the demands growing out of the changed situation had become apparent to a large number of producers, there was evident a reluctance to relinquish certain restraints on production. Suggestions that expansion was needed—in 1940 and 1941, and even in 1942—brought the retort from industry spokesmen that existing capacity was adequate for any demands. This report came from agricultural groups and processors alike. Such statements, again and again within a few days or weeks, have been proved false as the rapid shift of events more and more clearly demonstrated the need for greater capacity and larger supplies.

Barriers to interstate trade—for example, the delays for reinspection of the grade of perishable fruits and vegetables, the expense of reloading trucks to allow for minor differences in maximum load limits—are bringing increased public resentment during the war.

In the face of a scarcity of supplies, price-raising agreements among wholesalers and retailers, if permitted, are likely to be more effective than usual. Increased payments to retailers in wartime may serve no useful social function.[4] If all or the major part of the increased price paid by consumers is shifted back to farmers, there is some chance that, as a result, production will be increased or crops will be more carefully harvested. Only with products where low-cost methods of marketing brings high waste may an increase in dollar payment to distributors be important in getting a larger supply for consumers. The high value of the product per unit will increase the loss which a market agent will incur from any waste. This by itself will serve to increase care in handling, even though the dollar payment per unit of produce handled is not increased.

Conservation in a period of shortage should be stressed with respect to the market as well as to homes and restaurants. Bread waste, due to agreement among bakers not to sell day-old bread, should cease. In 1942 fat conservation became a major problem. Ignorance of household waste of this food makes it impossible to estimate what amount of returns might be secured from an effective conservation program.

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[3] All beef from the Argentine, other than that canned, has been excluded by a quarantine against meat from areas in which cattle are infected by the foot and mouth disease. This has occurred in spite of the fact that the Argentine is a very large country and many large areas are reported to be entirely free from the disease.

[4] If prices to consumers are rising a reduction in the percentage margin taken by retailers and wholesalers is likely to be highly desirable. The same dollar payment to retailers, for example, will be secured with a smaller and smaller percentage margin as the price rises.

The checking of hoarding, either by householders or by speculators who plan to sell later, brings additional supplies into use and thus has an effect equivalent to a temporary expansion of supply. Hardy, of the Brookings Institution, Washington, D. C., whose recent systematic study, *Wartime Control of Prices,* illuminates many current problems, reports that during the mid-winter of 1917–1918 [5]

> A campaign for the release of hoarded flour resulted in the return of at least 1 million barrels to the Food Administration.

Control of Spending Power

Monetary controls, including government borrowing and taxation and credit policies, are an important part of price control because they affect spending power. Money income must be seen in relation to supplies of food and other products. Hence the control of food prices is not an isolated problem. It is related to the withdrawal of labor to other uses, to the shipping of increased supplies to the Allies, to the setting up of emergency supplies of concentrated foods to increase flexibility in fighting, and to the increased spending power of civilians without a compensating increase in civilian supply.

No system of price control which does not include official rationing can hold down food prices unless spending power is kept in line with the products available for use. If money income increases without a corresponding increase in civilian goods, a price rise, either open or concealed, is almost inevitable, unless spending power is at the same time drained off in the form of increased taxes or increased government borrowing.

Government Buying of Food Supplies

During a war the government may become the No. 1 buyer of many foods. In 1942 a relatively large armed force was already in existence, to which additions were rapidly made, and large supplies were bought for shipment to Great Britain under the lend-lease agreement.

Minor and major issues arise out of government buying. The type and quantity of products purchased, the timing of orders, and the specifications called for are all important. During the first few months of its existence the Consumers' Division of the National Defense Council on several occasions requested modification of government buying specifications in order not to disrupt unnecessarily the market for civilians. For example, by buying canned fruits and vegetables wholly or largely in No. 10 cans the government in the fall of 1940 completely changed the customary price relationship of products in cans of various sizes. At Thanksgiving time government orders threatened to clear the market of turkeys of a size especially suitable for the typical family and to leave the larger turkeys at a relatively low price.

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[5] C. O. Hardy, *op. cit.,* p. 152.

If supplies are relatively short in relation to civilian demand, the appearance of the government buyer may be a signal for an upward spurt of prices. The fixing of prices is likely to first appear for those foods of which the government is a heavy buyer.

Fixing Maximum Prices

Controls to check price rise may take many forms, some directly and others only indirectly affecting prices. Increasing supplies have an indirect effect; they help to hold prices down. The same effect comes from the withdrawal of spending power and from rationing. Along with such measures, the fixing of maximum prices also has a place. Price fixing, however, should not be detached from a consideration of spending power, civilian supply, and rationing.

Price-fixing policy is likely to be influenced by three social objectives: (1) Getting the volume and kind of products desired. This may call for expanding the supply of some and may contract that of others. (2) Achieving equity in income distribution. Equity is likely to be thought of largely in terms of maintaining relative group position in income level. (3) Achieving equity in consumption. Holding down prices serves to protect the consumption of low-income consumers.

Some people object to price fixing because they fear that prices may be set so low that maximum production is discouraged. In addition, the administrative difficulties are likely to be great. The machinery for effective control includes a country-wide bureaucracy. Civilians may be asked to report violations. The fixing of maximum prices may be undertaken to stop price increases due mainly or entirely to a wave of consumer buying or to a holding back of supply by speculators. Such actions may be occasioned by an anticipated price rise rather than by any long-run undersupply of the product.

Where a price rise grows out of a real shortage, rationing usually needs to accompany price fixing; for the latter does not eliminate the shortage which is a basic factor in a price rise. If prices are not allowed to rise, some means other than prices must be found for dividing up the supply that is smaller than customary or small in relation to spending power. If fixed retail prices are not accompanied by official rationing, "Mother Hubbard," or bare-shelf rationing, will occur—with the product going to those who get to the store first. Even after standing long hours in a queue, housewives might find that when their turn comes all the food which they had hoped to buy is gone. Retailers, of course, may play favorites and see that stocks are reserved for special clients. These may be people who are willing to pay a little more or to accept inferior quality or short measure without complaining or reporting violations.

The pressure of public opinion against price increases and exhortation from public officials, that price rises are both unjustified and unpatriotic, may have some effect in checking advances. Many times during 1941, for example, the American consumers were told that there was no justification for rises in the prices of sugar and coffee. Manufacturers, wholesalers, and retailers were urged, requested, and ordered not to raise prices. Groups of dealers on many occasions agreed that everything in their power would be done to check price advance. The effectiveness of such methods has over and over again been shown to be very limited.

A program of fixing maximum prices for foods raises many questions:

(*a*) For what foods shall prices be fixed?
(*b*) When and how should prices be fixed?
(*c*) What shall be the price differential between various cities? Stores? Qualities?
(*d*) In what markets shall prices be fixed? Wholesale or retail or both?
(*e*) How frequently shall prices on the various foods be adjusted? When changes are made, what shall be the basis for adjustment?
(*f*) How are mandatory prices to be enforced? What penalties will be imposed on those who violate a price order?
(*g*) To what extent shall the price fixing be supported by rationing?

The issues involved in these questions cannot be fully explored here. A few comments on some of them will be made, however.

What Foods?

The less perishable a food, the more standardized its quality, and the less seasonality in its customary price, the more readily can it be subjected to official price control. Price control of fresh fruits and vegetables would, accordingly, be very difficult. Seasonality in price, especially extreme fluctuations, is closely related to perishability. If it is ignored by price fixers, a disturbance in total supply and in the supply moving into various markets is likely to occur.

When Should Prices Be Fixed?

The higher prices rise the more urgent becomes the need for fixing prices, if only to check hoarding and speculative buying that keeps staple foods out of use. Furthermore, after prices in general have risen to a certain level and productive resources are being fully used, a rise in prices will not increase the total volume of goods.

A Ceiling on Prices

If prices are to be frozen as of a particular date, it is necessary to have a record of prices existing at that time. Sellers may be asked to provide them, giving details concerning qualities and quantities of products sold. When this is done it is important that dealers do not anticipate the date to be used as the basis of price fixing and move their prices to a higher level than otherwise. It would be possible to use the prices as of a particular date which are reported by the U. S. Bureau of Labor Statistics for wholesale and retail markets and by the U. S. Bureau of Agricultural Economics for the local and central markets.

Price Differentials among Sellers and Qualities

The prices fixed may be those existing as of a certain date for the various sellers. Such a system takes into account differences among various cities, which would be important in wholesale buying and selling, among retail stores within any one community, among qualities within any one store. Differences that exist at any one time may, however, not be a sound basis for future action. This will be especially true if some retailers, in anticipation of price fixing, pushed up their prices. Other factors are important. For example, the price differential between a full-service and a nearby cash-and-carry store may be 10 per cent at the time the price fixing goes into effect. The full-service store may eliminate, however, free delivery and in that way actually increase the price charged for the product itself. The cash-and-carry store can make no such adjustment. The former full-service store may count on retaining patronage for the price-fixed products even though it continues the previous price differential along with less service. Such action is possible if the foods that are price fixed are relatively scarce and the demand for them inelastic. When supplies are all sold in the low-priced stores, customers will have to come to the high-priced store to buy.

Some people favor fixing uniform ceiling prices for all retail stores in a community. The price presumably would be based on those prevailing in the "efficient" non-service retail stores and would compel the elimination of free services. Such a move would greatly simplify the policing of price violations, and it might serve to promote some increase in efficiency. The administrative difficulty of deciding on the price ceiling for the separate products as well as the likelihood of resentment among retailers would be greatly increased.

The system of fixing the price differential between qualities for most foods leaves considerable leeway for concealed price increases. There may, for example, be one price for center-cut ham slices and another price for end cuts. By selling more of the ham as center-cut slices, a higher average price for the whole ham can be secured. There may be various grades of bacon. Prices can rise by sellers' getting high-quality prices for low-quality products.

Regional problems may arise. Because of seasonal or other factors, the price as of the freezing date may have been especially low in a given region. As a result it may later find it impossible to get its share of the supplies. Such is the experience of the Boston market, which during a part of 1942 found itself unable to get supplies of certain qualities of beef even though other markets were fairly well supplied. Price adjustment among regions, stores, and dealers may be necessary from time to time.

Simplification of Products

Minor differences in qualities of products and in quantity per package are characteristics of the American market. This condition greatly increases the number of prices to be watched, for the price must be for a specified quantity of a food with certain qualities. In order to simplify price control, variety may be greatly reduced, the variation both in quality, in sizes of units permitted, and in services provided. Concealed price increase may be checked somewhat by making mandatory informative labeling and simplification of the size of containers.

> Two bills to standardize bread weight and meat grading for the retail market in New York City have been introduced. Measures are designed to aid Government campaign against food product profiteering and to set specific standards, so consumer may know quality and weights of bread and meat. Bread bill requires that bread be baked in stated weights and precisely labeled . . . restricts moisture content of a loaf to 38 percent . . . standard weights would be 12 ounces, 1 pound, 20 ounces, 24 ounces or multiples of 1 pound. Meat bill provides for grading according to U. S. Government standards in 7 grades . . . would eliminate ambiguous terms . . . cuts of meat plainly marked with their grade . . . butchers required to post signs listing all meats by grade, kind and price. . . .[6]

[6] *Consumer News Digest,* Mar. 16, 1942.

Simplification of quantity units may also be necessary in many types of rationing involving a weekly ration of a pound or a half pound for example.

Quality as well as quantity simplification may occur in wartime. For example, in Great Britain only two grades of margarine are now permitted. If such action raises the price of the lowest quality permitted, its effect on low-income families needs to be considered.

Price Fixing Single Foods

At times blanket price fixing is used, affecting all commodities or all products of a certain class, for example, all food. At other times prices are fixed on single commodities, for example, sugar or pork. The shortage of one food, say, pork, even without price fixing will increase the demand for substitute foods such as beef and poultry. The upward pressure on their prices may be made, however, somewhat greater by holding down the price of pork than if the same quantity of pork were sold at a higher price. At the lower price some pork will go to people who, if the price were allowed to rise, would not be able to afford as much pork as they now consume. These are people who could afford a relatively small amount of the higher-priced substitutes. With the price of pork held down, there is a smaller supply of it for those people who will most readily shift to beef and poultry. In addition, if the price of pork is held down, less money is spent for pork than otherwise, and a larger amount of money is available for the purchase of other foods. Thus the price fixing of one food tends to push up the price of other foods, especially of close substitutes.

Fixing Wholesale Prices Only

Prices are fixed at either wholesale or retail levels or at both. If they are fixed at the wholesale levels alone, prices paid the farmer for the produce tend to be held down and also the prices at which the government buys food, for example, the food for the armed forces and for shipments to the Allies. There may be a tendency, however, for retail prices to consumers to rise and for the retailers' markup to increase. An attempt may be made to get retailers to agree not to raise prices; but with a consumers' demand that will take the supplies available at higher prices, there will be pressure on retail prices to move upward. If they move up the government in its buying and the retailers alone benefit from the price fixing. No benefits would accrue to either consumers or farmers. It may be possible to check somewhat the rise in retail prices by publicity concerning "fair" prices and by local supervision by consumers. Retail stores in that event will have no supplies for some consumers who would be willing to pay the prices being charged or even higher prices.

Fixing Retail Prices Only

If retail prices are officially fixed, the price rise to consumers may be confined to a concealed price rise made possible through dropping services or the substitution of a lower for a higher quality. The possible rise in the price of food through these means may amount to as much as 25 per cent. If retail prices are fixed and no restrictions are placed on wholesale and farm prices, they will presumably be held down by competition. Retailers will insist on a certain margin for handling the products. Competition for supplies from the wholesalers will, however, prevent retailers from increasing their margins.

Fixing Both Wholesale and Retail Prices

At times a price order is issued, freezing prices at all market levels. Complications are likely to arise in that retail prices tend to lag behind wholesale prices. If both retail and wholesale prices are frozen as of the same date, the retailer may find that a great reduction in his dollar margin as well as in his percentage margin is required. In such a case, provision may be made for either adjusting retail prices up or adjusting wholesale prices down—the latter in 1942 was described as "rolling back the squeeze." It might be possible to have maximum prices for wholesalers based on an earlier period than that used for maximum prices for retailers and in this way to freeze the two sets of prices at something approaching customary relationships.

Retailer-Wholesaler Relations When Supplies Are "Scarce"

When maximum prices are fixed, a shortage of supplies usually exists in terms of quantities people are willing to take at the prices being charged. In the absence of official rationing, wholesaler-retailer and retailer-consumer relationships both undergo a change. One can only guess at the effects of these. Wholesalers in the beginning may follow the custom of serving all their former retailer clients, allocating available supplies among them in much the same proportion as formerly. In time, however, wholesalers are likely to shift more and more of the total supplies to those retailers who offer them the best price or other advantage. Some retailers may be in a better position than others to do this. Some of them in anticipation of price fixing may have managed to get their prices relatively high, or some may be able to cut costs by eliminating former free services. In these cases they may be able to offer the wholesaler a relatively high price or various kinds of non-price advantage, such as taking over some of the expense of getting the product to their stores that had formerly been borne by the wholesaler. In this way they will be able to induce him to shift to them a larger proportion of the total supplies available. These retailers can sell the relatively large amount which they get from the wholesaler without lowering their prices to the level of the nearby stores whose prices were fixed at the lower level, because there are not enough supplies to satisfy all consumer demand. Thus to an increasing extent the supplies of a price-fixed product may move to the high-priced stores.

Retailers Ration Consumers

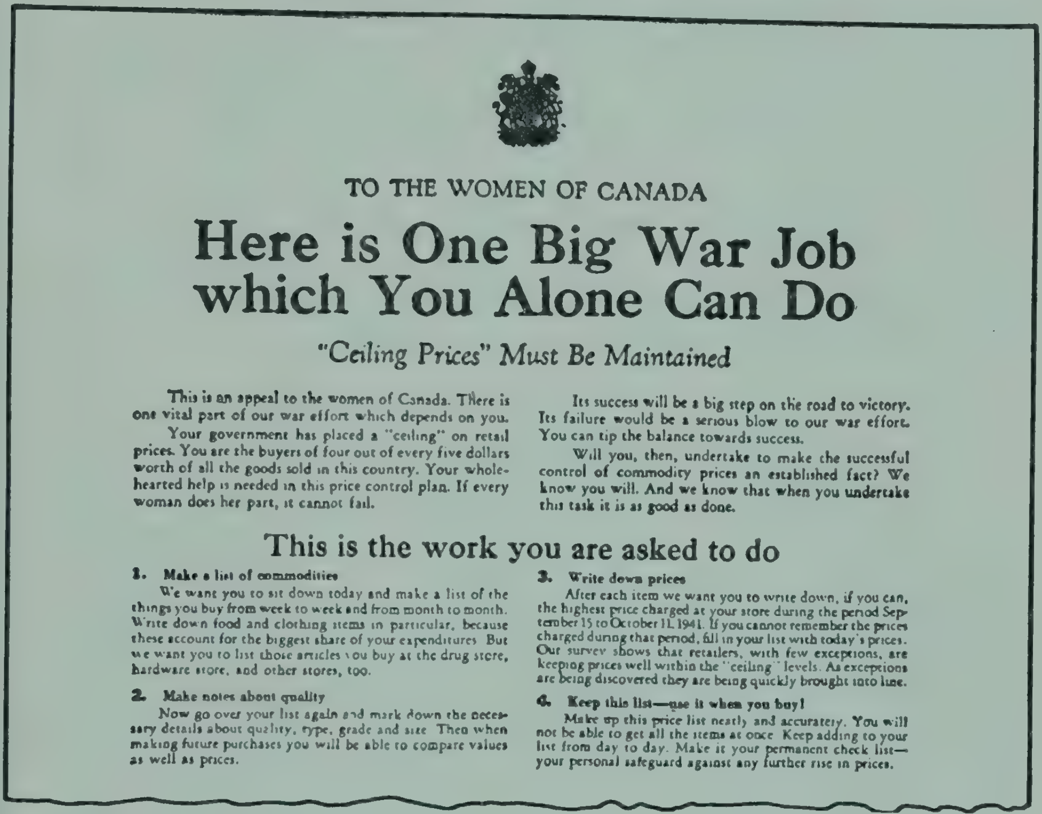
Retailers can reduce the purchase of any one food below former levels by failing to feature it in advertising and in the store. In this way demand in some measure can be shifted to the more plentiful foods. As the limits of this method are reached and supplies are less than enough to satisfy consumer demand retailers may find it necessary to ration their customers. This condition may reduce the shopping around from store to store, since retailers may favor regular patrons. Where the shortage is very great the seller may demand rewards other than the actual price paid in order to induce him to favor one buyer rather than another. Ingenious requirements may be devised. Furthermore, complaining customers will probably find themselves discriminated against to the extent at least of getting no special favors.

If price fixing at the retail level is combined with consumer rationing, price competition between stores may be more fully preserved. The high-priced store may not find it so easy to find buyers for his high-priced products. The ration coupons which consumers turn over to a retailer become his claim on volume to be sold to him by the wholesaler. In this case there might actually be a shifting of volume to the low-priced retailer if pressure were being put on consumers to economize.

Checking Violations of Price-Fixing Orders

Violations of price-fixing orders may be checked by three groups: government officials, competing sellers, and consumers. Comment has already been made on the limitations of consumers' reporting in the face of marked shortage of supply where official rationing does not occur. Little is known of the extent to which sellers will check each other. They will probably do very little without considerable co-operation from government officials and clear-cut demonstrations that the violators are "not going to get away with it." Widespread propaganda has an important place in getting necessary co-operation. Voluntary co-operation, however, will break down if extensive evasion occurs and violators are not punished. A price-control administration to deal with offenses is necessary.

Consumers' cooperation is at times relied on to a very great extent. For example, a price ceiling was put on retail prices in Canada based on the highest price charged for the product for the period between September 15 and October 11, 1941. The women of Canada were appealed to as follows:



TO THE WOMEN OF CANADA

Here is One Big War Job which You Alone Can Do

"Ceiling Prices" Must Be Maintained

This is an appeal to the women of Canada. There is one vital part of our war effort which depends on you.

Your government has placed a "ceiling" on retail prices. You are the buyers of four out of every five dollars worth of all the goods sold in this country. Your whole-hearted help is needed in this price control plan. If every woman does her part, it cannot fail.

Its success will be a big step on the road to victory. Its failure would be a serious blow to our war effort. You can tip the balance towards success.

Will you, then, undertake to make the successful control of commodity prices an established fact? We know you will. And we know that when you undertake this task it is as good as done.

This is the work you are asked to do

1. Make a list of commodities

We want you to sit down today and make a list of the things you buy from week to week and from month to month. Write down food and clothing items in particular, because these account for the biggest share of your expenditures. But we want you to list those articles you buy at the drug store, hardware store, and other stores, too.

2. Make notes about quality

Now go over your list again and mark down the necessary details about quality, type, grade and size. Then when making future purchases you will be able to compare values as well as prices.

3. Write down prices

After each item we want you to write down, if you can, the highest price charged at your store during the period September 15 to October 11, 1941. If you cannot remember the prices charged during that period, fill in your list with today's prices. Our survey shows that retailers, with few exceptions, are keeping prices well within the "ceiling" levels. As exceptions are being discovered they are being quickly brought into line.

4. Keep this list—use it when you buy!

Make up this price list neatly and accurately. You will not be able to get all the items at once. Keep adding to your list from day to day. Make it your permanent check list—your personal safeguard against any further rise in prices.

The announcement goes on to point out that prices between stores may be different and that the retailer may either reduce his prices or raise them, but that he must not go above the highest price that he charged during the specified period. According to official price indices, the method has been effective in checking a price rise. In some war situations, however, official indices have fallen far below their customary level of accuracy in reflecting price change.

Preventing Price Rise by an Excise Tax

When the price of a food has reached a point where a higher price would not induce an expansion in production or a reduction of waste in distribution, a further price rise has no important useful function apart from rationing the product among consumers. An increased price will go merely to swell the profits of producers or distributors along the way. In this situation it may be desirable to place a tax on the product so that such profits would go to the government. Such a move, of course, would eliminate low-income consumers from the market in the same way as a high price, such as would occur if the limited supply were sold for what it would bring without any tax being imposed. The effect in the two cases, with and without the tax, is essentially the same to consumers. With a properly adjusted tax the government would, however, get the extra over and above necessary costs rather than have it go to swell the profits of producers and distributors. This policy would probably meet with many objections. One reason would be that consumers have been told, over and over again, that a tax on food is socially undesirable—since it is regressive on the low-income families. Furthermore, such excise taxes in no way contribute to a "fair" sharing of "scarce" supplies. The substitute for such an excise tax is retail-price fixing and rationing. The first without the second is likely to be ineffective if the shortage is more than mild.

Ways of Dealing with Shortages

When the supply of any food decreases or the demand rises, prices may be allowed to rise, and many consumers faced with a higher price will economize in the use of the food. There may be an antiwaste campaign directed both at the market agents and at homemakers. Family production, as with gardens, may be urged. People may be urged to shift to substitutes voluntarily. Orders may be issued that consumers are not to purchase more than a specified quantity per week or month, or retailers are ordered to restrict sales per customer or to sell a specified quantity of a substitute food which is plentiful along with a specified quantity of the scarce food. Enforcement of such orders rests largely on a sense of patriotism and public spirit. Consumers can, of course, go to several stores, purchasing the minimum amount, and they may discard the substitute food which they were required to purchase.

Rationing among Uses

Official rationing may take several forms and may involve comparisons between uses as well as between groups and individuals. The government by its decisions to ship certain foods abroad and to buy certain foods for the armed forces determines the quantity of foods available for civilians to use. A food may have to be rationed between a non-food and a food use. A heated debate occurred in 1942 over the extent to which industrial alcohol should be manufactured from sugar or wheat. A food may also have to be rationed between various food uses. For example, sugar to be consumed in the United States must be rationed to canners, bakeries, confectioners, manufacturers of soft drinks, and restaurants, as well as to households.

Should the percentage cut be equal for each of these groups? Or should certain uses be cut more than others? There are some who would probably favor the largest cut going to soft-drink manufacturers. Yet the bloc of Southern senators, in whose constituencies soft-drink manufacturing is concentrated, may press to keep the allotment of sugar for this use at or close to former levels and thus force greater cuts to other uses.

Compulsory Rationing of Consumers

Facts about supply and probable demand are important in gauging the need for compulsory rationing. It may be needed for a food even though the pounds or quarts of it available per person are being maintained at former levels. Rising income may increase the demand so that with static prices a supply adequate for an earlier demand is now inadequate. Knowledge of income elasticity of various foods along with facts about physical supply, income level, income distribution, and price level are important in gauging the extent of the shortage likely to occur.

Compulsory rationing is usually resorted to because other measures have proved inadequate. Foremost among the objectives of rationing is the fair sharing of scarce products. Inequalities accepted in peacetime may bring sharp resentment under the emotional strains and stresses of war. Because food supplies are scarcer than usual, rationing may be a necessary step in order to protect the nutritional health of low-income families. The principle of share and share alike is important physiologically as well as psychologically. Rationing may also be important in order to reduce the time spent in shopping and the disadvantage which shortage imposes on those least able to get to the shops just after supplies arrive or least able to stand in queues awaiting their turn. The need for rationing in order to achieve price control has already been pointed out.

Numerous decisions are involved and extensive machinery must be set up in order to have compulsory rationing of food to individuals or families. Each food has its own special problems; at times rationing is confined to one or two foods. In a serious shortage, many foods may be rationed. Short rations on one food are likely to increase the demand for other foods. In a severe fat shortage, with butter supplies especially short, the rationing of butter, for example, might necessitate the rationing of margarine and cooking fats. Rationing of sugar may call for the rationing of jellies, preserves, syrup, honey, and even canned fruit. The rationing of pork probably would not be very effective without the rationing of meats in general.

Types of Food Rationing

There are three major types of food rationing. Consumers during a given period may be allowed to buy a specified amount of a food or group of foods measured in one of three ways: (a) by physical quantity, (b) by value, or (c) by points. A food-rationing system evolved within a country may use all three of these methods.

A variant of quantity rationing may occur for foods whose supply is irregular. Consumers may, for example, be required to register with their grocer. When supplies come, the grocer may be required for a period of several days to restrict sales to a specified quantity for each person registered, after which the remainder may be sold to first come first served. In such cases priority requirements may be set. In Great Britain, for example, no oranges are sold to adults until such time as all children registered get a specified ration.

Value rationing may relate to one type of food or to a closely related group such as meat. If it is extended to all foods, it is usually described as purchasing-power rationing. Although this has never been tried, it is advocated by some.

In point rationing a consumer is given the right to purchase foods having a given number of points, let us say, 16 points per month. These point rations are rights to buy a specified group of foods, each of which has been assigned to it a given number of points. When a food is purchased, the consumer must not only pay the price asked for it but must also relinquish the points assigned to it. A food might be high in point value and low in price or vice versa, or points and price may be high or low together. If a consumer has a limited amount of money to spend, she may have difficulty in making the quantity of points she is allotted match the quantity of money which she has to spend. If she should decide to buy foods with a high point value, she may, of course, find herself running out of points long before she runs out of money.

Quantity rations, wherein consumers are entitled to the regular purchase of a specified quantity of food, is considered especially suitable for such foods as sugar, milk, and cheese, for which quality differences introduce little complication and which are fairly universal in demand and regular in supply. It is not considered quite so satisfactory for meat as for sugar, for example, since those first to the store in the purchase of meat would get the better quality. Those last to the store may find little there from which to choose—perhaps only meat with a high proportion of fat, gristle, and bone. Quantity with meat is rather difficult to define. Soup bones may be exempt from the ration, but how much bone and fat are to be counted in the weekly ration allowed?

Value rationing of meat has occurred in Great Britain. This method tends to increase the demand for the low-priced cuts since these provide more meat per unit of expenditure. If prices are fixed and price violation does not occur, the price of the low-priced cuts will not rise, but they will be the first to be sold, and consumers coming late to the market may have to buy high-priced cuts or do without.

Point rationing has been used in Great Britain for non-perishable foods which individually have been relatively unimportant in the total food supply. Their rationing has been considered an important step in ensuring variety rather than in providing a basic diet. Point rationing has been confined to non-perishable foods since it is very difficult to assign points to the separate foods in such a way as to be assured that they will be sold within a given period of time. With the foods included in point rationing, if one sells more slowly than was anticipated, the rationing board may lower the point value. This process of adjusting points takes time. In Great Britain, during December, 1941, the points for one pound of salmon were advanced from 16 to 24 points and those for U. S. A. canned luncheon meat such as Spam was lowered from 16 to 8 points. Consumers showed a very high preference for canned salmon; their consumption of the unknown canned "sausage" had to be encouraged by a low point value.

Point rationing might be used to shift demand and thus to regulate the relative quantities of finished products which come from a common basic food. For example, point rationing of dairy products might be used to expand the consumption of evaporated milk. It is made outside the highly industrialized areas in which fluid milk is produced and in which labor in many instances has become very scarce. It might also be used to shift demand from butter and heavy cream, which use is such a small part of the total nutrients of the milk, to evaporated milk, cheese, and whole milk. Shifts of these types would call for points such as the following being assigned to the various dairy products:

Type of Dairy Product	*Number of Points*
Fluid milk, 3.5 per cent fat, 1 quart	2
Evaporated whole milk, 14½-ounce can (equals 1 quart fresh milk)	1
Dried skim milk, 1 pound	1
Cream, over 22 per cent fat, ½ pint	8
Cream under 16 per cent fat, ½ pint	4
Cheese, whole milk, 1 pound	6
Buttermilk, chocolate milk, etc.	2

Quantity and value rationing of one food or a closely related group of foods has the advantage of simplicity. Point rationing, on the other hand, is more complex and certainly would necessitate more educational effort in acquainting consumers and retailers concerning its use. If quantity or value rationing comes to include a great variety of foods, it may seem to be a very cumbersome method that might be simplified somewhat by including some of the foods in a point rationing system. Both value and quantity rationing of separate foods limit consumer choice, since the ration confers a claim only for a given food. It is not useful in securing another food. Point rationing, on the other hand, permits choice among a variety of foods. In general, freedom of consumer choice is a condition to be desired. However, when supplies are scarce and the danger of lowered nutritional health is great, some restriction on choice through quantity and value rations of basic foods may be desirable. In this way people may not be allowed to decide whether they will reduce their consumption of milk in order to have more sugar or their meat and eggs in order to have more tea.

The Size of the Ration

After deciding to ration a food, the most obvious question concerns the size of the ration to be given. Equal shares to all is the simplest, and if it is a food like sugar, universally consumed by all age groups, an equal amount per person may seem to be a workable scheme, even though it would be quite unsuitable if tea, coffee, or milk were being rationed. Even with sugar some persons may question the desirability of an equal ration. They may point to the Consumer Purchases Study which reports larger per capita purchases of sugar by farm than by urban families in the same region,[7] and considerable difference among regions. The difference in part may be the result of the larger amount of canning and preserving and the smaller purchase of bakery products and confectionery, by farm in contrast with urban families. The rationing may put pressure on families to increase their use of prepared foods. Furthermore, insufficient sugar for canning and preserving may lead to the waste of some fruit on farms, where it is raised chiefly for home consumption. The more the ration restricts customary use the greater is the need for adjustments.

The scarcer the food supply the greater becomes the need for rationing it to people on the basis of their age and the kind of work which they are expected to carry on. Such an adjustment would probably be more important with meat than sugar. Reports indicate that in Germany such rationing has been developed to a "refined" degree.[8]

Needs vary greatly with age and type of work. The extent to which this fact needs to be taken into account in individual rations depends on other means used to regulate consumption. If children through school lunches are assured of some milk, then their home ration may be smaller than would otherwise be suitable. If workers are getting food through canteens, an individual food ration that ignores type of work may be entirely satisfactory.

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[7] See Chapter 15.

[8] See, for example, *Monthly Lab. Rev.*, August, 1941.

The question may arise as to whether size of ration should vary with the region of the country—in the United States, for example, between the South and the North. For those foods having a national market, consumer habits are sufficiently uniform so that differential in size of ration seems unnecessary. If fresh fruits and vegetables should ever be rationed, a condition which seems very unlikely, local difference might need to be made. Fluid milk is our most outstanding example of a food with a local supply. Rationing on a local basis might be important for it.

Ration Coupons in Relation to Demand and Supply

One of the major problems of consumer rationing is to gauge the relationship between the outstanding ration coupons and the supply that will be available and the demand that will actually occur. Sometimes the supply is not enough to provide every one with the ration to which his coupons entitle him. On the other hand, consumers may fail to purchase to the limit of their rations. This may occur either because the product is not wanted or because of lack of purchasing power. Low-income families may have to be provided with additional purchasing power in order to have the amount of food assigned to them in the ration. As food prices rise the need for such additions increases.

Because of unknowns concerning supply it may be advisable at times to base the ration on the amount that is certain to be available; then, if extra amounts are available, to increase the ration by a certain percentage. For example, if the ration were to be increased, every consumer holding a ration coupon entitling him to buy a pound of pork might be permitted to buy a pound and a quarter.

Rationing, like price fixing, calls for policing and penalties for violation. Without them "black" markets may grow to be of major importance, where products are illegally sold. In that case the supply moves to people who will pay prices above the maximum rather than to those holding coupons.

Consumption Included in the Ration?

Are restaurant or other such meals to be included in the rations allotted to individuals? For the most part, the answer to this question has been, "No." The decision has at times brought considerable dissatisfaction in that high-income consumers, feeling the pinch of rations for home consumption, are more likely than low-income consumers to feel that they can afford to eat out. In Great Britain two important steps have been taken:

(1) Restaurants have been rationed on the basis of the number of meals which they serve, and restrictions have been placed on the foods served at any one meal, and (2) restaurants especially designed to serve low-income consumers have been developed. These are described as British restaurants and serve many purposes in the war food program, including emergency feeding when severe bombing occurs. The government provides subsidy for equipping the restaurants, and considerable voluntary labor is used in the operation of many of them.

Retailer Relationships

When individual rationing is introduced, the question arises concerning the extent to which competition among retailers is to be fostered by the rules laid down. A high degree of competition is likely to be favored by those who feel that there is considerable waste in retailing and that much of the labor in food as well as other retailing in this emergency might better be shifted to other uses. Those who seek to protect established business favor rationing rules which minimize competition, especially that which would tend to force out small-scale retailers.

The important condition is whether consumers are free to shop from store to store or whether, in getting their rations, they are to be tied to a particular retailer. When quantity and value rationing are used, being tied to a grocer, especially when maximum prices permitted in the various stores are the same or nearly the same, tends to maintain the small store in business. Point rationing, when applied to a considerable range of food, may lead consumers to favor the larger store in order to be assured of greater choice, in which case the small retailer is benefited by a ruling which leaves the consumer free to buy foods under point rationing at any store. If consumers were required to choose their grocer for all the foods included in the point ration, they would tend to choose the large store. If they are left free to buy foods in the point ration anywhere, they are likely to buy at least some of them with the small retailer.

Subsidy: A Means to Fair Sharing

In war as in peace there are families which because of low income cannot afford adequate food. With increased scarcity during the war and increased need for fair sharing the need for subsidy may increase. Subsidy may also be provided for particular foods because it is feared that families underrate its importance in the diet. The food stamp plan may be used specifically to promote health and enable families to buy their share of rationed foods rather than to maintain the price of various foods. Subsidy to school lunches as well as low-cost milk programs may be very important.

In Great Britain fresh milk is subsidized for school children and for all preschool children and nursing and pregnant mothers so that it is available to them at 2*d.* a pint. In addition, a specified quantity is provided free to children and mothers in low-income families. The subsidy to British restaurants has already been mentioned.

Particular foods might be subsidized and their prices to all consumers lowered. If benefit to low-income consumers is the objective, it is important with rationed foods that the subsidy be adequate to lower the price sufficiently so that the low-income consumers can afford to buy all or a large part of their ration; otherwise the subsidy is, in fact, going to those with moderate and high incomes.

An unrationed food would only be subsidized if its price were being maintained at a relatively high level in order to encourage production to get the relatively large supply that would be demanded at the lower price. Again, if benefits to low-income consumers is being considered, the food thus subsidized should be one relatively important in their diet. In Great Britain subsidy has been used to keep bread prices low. Bread up until 1942 had not been rationed.

Getting Control of Supply

Successful food rationing as well as price control depends on getting control of food supply and controlling it through all the stages of its distribution. It is much easier to get control of the supply of sugar which is either imported or processed in large plants than it is to get control of the supply of meat or butter. Sugar can readily be rationed to farm families, but it is very doubtful whether their meat consumption can be rationed. In addition, the question arises as to whether black markets will develop in which rural families living in villages and towns under 2,500 population turn to neighboring farms for supplies in excess of their allotted rations.

Food Substitutes

When shortages arise attention turns to substitutes. Their importance for the people as a whole depends on the speed with which the supplies of the substitutes can be increased and the possibility of the increases filling the gap. Honey and syrups of many kinds are being widely recommended as substitutes for sugar. Obviously an increase in those syrups which come from the same source as sugar does nothing to alleviate future shortage. Even though honey supplies next year can be stepped up 50 per cent, they will not go far in making up for the sugar shortage that now seems likely, since honey in 1941 provided only 1 per cent of the sugar consumed. Suggestions that honey in place of sugar be used in cakes and other foods, of course, may have a desirable psychological effect, even though very little of the shortage can be met in this way.

The substitution of eggs for meat would have a tendency to push up the price of eggs. The production period for eggs is shorter than for meat. Hence in the face of a shortage of pork it may be better, for example, to urge consumers to buy more eggs than to buy more beef.

A marked increase can readily occur in the supply for human consumption of certain animal feeds. Cereals are the major item that can easily be shifted. Skimmed milk is also an important item, but more difficulties arise in quickly shifting a large part of it to human consumption. Any shift of animal feed to human consumption would reduce future meat supplies—but the potential human food reserves in animal feeds in America are at present very great.

Consumer preferences and habits may be a major obstacle to fuller use of certain foods which are quite plentiful. Ways need to be discovered to get large quantities of dried skim milk into the diet. A great expansion has occurred in the production of soy beans. Soy bean meal provides valuable proteins which so far have been used very little for human food. Soy bean flour or grits have been combined with dried skim milk and precooked legumes and seasoning and has been used in some school lunches chiefly in soups. The U. S. Bureau of Home Economics has tested several hundred recipes containing soy bean proteins—including soup mixtures, bread, biscuits, muffins, meat cakes, meat croquettes and meat loaf. Efforts are also being made to expand the human consumption of peanut proteins. The oils of both the soy beans and peanuts have well-established ways of getting into the diet.

Food Control in World War I[9]

So far we have been looking at some of the general issues that arise in the control of food supplies and prices during a war. Before turning to the current situation we will look briefly at events during World War I. Shortages, in the sense of supplies for American consumers being considerably below former levels, occurred chiefly for wheat flour, sugar, pork, and canned fish. Large quantities of these were shipped overseas. More extensive controls were imposed on these foods than on any other. Although food supplies were maintained at all times at a very high level, the war program greatly increased the spending power of consumers. This brought an upward pressure on food prices in general.

[9] For extended discussion see W. C. Mullendore, *History of the United States Food Administration, 1917–1919,* 1941.

Authority for price control at that time was derived largely from the Lever Act of 1917, which conferred many powers on the President, including "the control of production, distribution, and prices of foods, feeds, fuel, fertilizer, and the equipment required for the production of foods and fuel. It specifically prohibited, in the industries and trades to which it related, the destruction of goods for the purpose of enhancing the price; wasteful practices in production, manufacture, and distribution; hoarding; monopolization; discriminatory, unfair, or wasteful practices; and unjust and unreasonable rates of charge. . . . The President was also authorized to requisition foods and to buy, store and sell them, and to take over the operation by the government factories and plants manufacturing necessaries. . . ."[10]

The licensing system, supplemented by publicity, was the major control used; the licenses first required were for handling wheat, rye, sugar, and sugar products. By October 8, 1917, practically all staple foods were added to the list.

A Food Administration was set up with a Federal Food Administrator in every state. Its activities included many things in addition to the direct control of prices, for example: "the establishment of maximum permissible rates of profits for concerns engaged in the processing and distributing of food products; allocation of supplies to different uses and different regions; control of food exports and the centralization of the purchasing of food products for the Allies; campaigns to prevent waste and bring about curtailment of consumption of scarce items; and the stimulation of production. . . ."[11]

Hardy, of the Brookings Institution, considers that the centralized buying of critical foodstuffs for governmental and allied use was "probably the most important phase of the whole system of control." Because of the extreme need of the Allies for foods and because of the purchase of these foods by checks drawn on the federal treasury, reckless bidding at times occurred for foods whose supply was relatively fixed. This action was especially important for sugar, wheat, and flour.

In order to encourage production, minimum prices for a few foods were guaranteed. They were used chiefly for wheat, hogs, and sugar beets. It was felt that they serve to stimulate earlier production than would otherwise have occurred. This precedent was probably an important factor in the decision, made early in 1941, to announce price floors for farm prices of several basic foods.

Little was done to control prices paid to farmers, except where the products were heavily purchased for overseas shipment. Relatively little attention was given to rationing; it appeared to be looked upon as a last resort.

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[10] C. O. Hardy, *Wartime Control of Prices,* 1940, p. 145.

[11] *Ibid.,* p. 144.

Distributors' margins were controlled in several ways: profit margins were limited sometimes in cents or dollars per unit and sometimes in percentage terms; profit rates were restricted in relation to investment. In some cases trade practices were prescribed, for example, packaging, delivery services and commissions, and a merchant's relations to his patrons. Regulations designed to check speculation were enforced. Margins were later controlled.

The wholesale price of sugar was the first to be controlled. Hardy believes that "This procedure undoubtedly kept down the retail price of sugar. . . ."[12] "Late in 1918 wholesalers were allowed a maximum margin of from 15 to 35 cents per hundred pounds, retailers 1.5 cents a pound in bulk sugar and 1 cent in package sugar. . . ."[13]

In the meantime ways of dividing up the scarce supply had to be devised. Voluntary rationing to manufacturers did not appear to be very effective. After it was tried, manufacturers were required "to obtain from the Food Administration certificates showing they were entitled to purchase and to present these when sugar was ordered. . . ."[14]

Consumers' purchases of sugar were restricted. "In the summer and fall of 1918 retailers were forbidden to sell sugar to domestic consumers in excess of 3, and later 2, pounds per month. . . ."[15]

The price of wheat, August 30, 1917, was fixed at $2.20. The profits of licensed millers and dealers was restricted. Some way of curtailing consumption was thought to be necessary. Direct rationing was, however, not used. Reduction of waste and the use of substitutes were urged. Hardy reports, "An attempt was first made to stimulate voluntary conservation by propaganda, with but slight success. There was no visible curtailment of consumption before the mid-winter of 1917–18."[16]

Direct pressure of several types was used.

> All licensed mills were required to dilute the flour so as to get about 8 percent more flour out of a bushel of wheat. . . . Bakers were required to mix substitutes with wheat flour, and retail buyers were required to purchase substitutes with each purchase of wheat flour.[17]

The Food Administration believed that the last of these rules "resulted in at least a 25 per cent reduction in domestic consumption of wheat flour for several months."[18]

[12] *Ibid.*, p. 157.
[13] *Ibid.*, p. 165.
[14] *Ibid.*, p. 158.
[15] *Ibid.*, p. 159.
[16] *Ibid.*, p. 152.
[17] *Ibid.*, p. 152.
[18] *Ibid.*, p. 153.

> There was no general regulation of the price of bread, though local administrators in many localities published "fair prices," and bakers who wished to sell at higher price were required to submit evidence that such higher prices were necessary.[19]

The prices of meat were not directly regulated. A provisional minimum price was used to stimulate the production of pork and the profits of meat packers were regulated; consumers were urged to have meatless meals and meatless days and to substitute beef for pork.

Price fixing to a limited extent applied to several foods.

> Prices of cold storage butter and eggs were fixed for a short time in 1918. For California dried fruits, sardines, and salmon, the prices received by producers were controlled directly. . . . In addition, there was a large amount of virtual fixing of retail prices through the publication of fair price lists, compiled by state and local food administrators. Although the observance of these prices was not mandatory, their publication made it difficult for any retailer to charge more, even though under the regulations his costs might justify a higher price. Moreover, the Food Administration put the burden of proof on the retailer to show cause why he should be permitted to go above the posted fair price list.[20]

Concerning this system of price control, Hardy reports: "This system placed a large amount of authority in the hands of local agencies and caused much complaint from the trade, the justification of which cannot now be determined." [21]

Hardy, after surveying the activities of the Food Administration, expresses the belief that "the scope of price control was unnecessarily broad." He states, "Very little would have been lost if price control had been limited to commodities purchased in large quantities by the government for overseas shipment." [22]

Pearl, chief of the Statistical Division of the U. S. Food Administration, has attempted to measure the effect of the war on American food consumption. His study, *The Nation's Food,* analyzed food consumption during the years 1911–1918. In Table 113 are shown changes in the consumption of the major foods from 1917 to 1918 in contrast with that of the six preceding years. Pearl points out that 1917–1918 is the year in which the policies of the food administration were most effective. Pork, sugar, and grain, especially wheat, were the major foods for which an attempt was made to reduce consumption. Pearl writes: [23]

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[19] *Ibid.,* p. 154.

[20] *Ibid.,* pp. 162–3.

[21] *Ibid.*

[22] *Ibid.,* p. 182.

[23] *Op. cit.,* p. 244.

Table 113. Percentage of Total Calories from Specified Foods for 1911–1917 and Percentage Difference in Food Consumption in 1917–1918 as Compared with the Average Annual Consumption of the Six Preceding Years *

Commodity	Average for Six Years 1911–1912 to 1916–1917 †	Percentage Difference between 1917–1918 and Annual Average of Six Preceding Years (Crop year 1917–1918 = 100)	
		Increase	Decrease
Oranges	0.11		32.61
Mutton	0.61		30.03
Bananas	0.40		17.29
Apples	1.08		14.13
Wheat	25.90		10.80
Fish	0.41		0.20
Pork	15.74	0.69	
Poultry and eggs	2.02	1.07	
Beef	5.30	3.26	
Sugars	13.24	4.32	
Dairy products	15.26	5.93	
Oils	3.62	9.83	
Corn	7.03	19.66	
Other fruits	0.62	24.15	
Potatoes	3.36	24.93	
Other vegetables	1.13	30.00	
Legumes	0.83	52.02	
Rice	0.60	78.33	
Cocoa	0.29	82.54	
Nuts	0.92	89.07	
Oleomargarine	0.42	115.69	
Other cereals	0.69	115.80	
Rye	0.45	120.13	
Total	100.00	5.30	
Population Increase		5.73	

* R. Pearl, *The Nation's Food*, 1920, pp. 236 and 242.

† These data indicate the relative importance of various sources of energy.

It will be noted . . . that the commodities showing great increases in consumption in 1917–18 over the preceding years are, for the most part, those which the Food Administration urged to be substituted for articles of which the supply was less abundant, and for which the needs of the Allies were greatest. Thus, rye which constituted the most popular of the substitutes for wheat in the public

> mind, shows the greatest increased consumption in 1917–18. Next to it stands "Other cereals" of our classification, including barley and buckwheat. Nuts, rice and the vegetables generally show increases beyond the population increase, showing that the people very generally followed the suggestions of the Food Administration to consume more of these products and save wheat. The articles on which the Food Administration most strongly urged conservation—namely, wheat, beef, mutton, pork and the sugars—all show either a consumption actually below the normal average, or else a very slight increase in consumption, well below the population percentage increase. . . . The decrease in the consumption of the most popular fruits, oranges, apples and bananas, is largely if not entirely explained by high prices for these products.

Since the program of the Food Administration did not get under way until many months of the 1917–1918 year had passed, the data understate, probably considerably, the effects which the program had on restraining customary food consumption.

World War II: New Factors in the Situation

The food situation in the United States in 1939 was different in many ways from that which existed at the beginning or during World War I. At the outbreak of the war large supplies of many foods were in storage. Europe as a whole was providing a larger proportion of its own food than in 1914. By the summer of 1940 the expansion of German domination further reduced the number of European countries receiving American food supplies. It did, however, increase the dependence of Great Britain on food supplies from the United States.

Increased knowledge of nutrition has greatly increased the demand for protective foods to be shipped abroad, so that many new things are on the list of things to be shipped, such as dried eggs and milk, meat, cheese, and condensed orange juice.

The United States, in addition to having the experience of public administration of food in World War I, has developed an extensive agricultural administrative machinery, including the Surplus Marketing Administration with offices in many of the large cities and counties of the country. The various parts of the Agricultural Adjustment Administration has many potential uses in a control program.

Pigou, in discussing the English situation, writes:[24]

> This country is possessed of a vast medley of marketing boards, of which those controlling milk, bacon and potatoes are the best

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[24] A. C. Pigou, *Political Economy of War,* 1941, pp. 135–6.

> known. Thus, *prima facie,* we are in better position—because these organizations exist—for introducing an effective control of prices than we were a quarter of a century ago. On the other hand, it must be remembered, these organizations were set up with the express purpose of preventing farmers and various middlemen from earning too little, while what is now required is to prevent them from earning too much. Whether bodies designed for the former purpose with personnel and mentality adjusted to it can usefully be switched over to the latter is, to say the least, doubtful.

In addition there seems reason for believing that interest in checking inflationary price rise was somewhat keener in 1940 than in 1915. The inflation of World War I, with its complicating aftermath, is sufficiently recent so that many people from first-hand knowledge are voicing a desire: "Don't let it happen again."

Some Events Prior to the First Price-Control Act of 1942

World War II made itself felt in September, 1939, on food prices in the United States. Memories of high sugar prices in World War I are probably responsible for a flurry of sugar purchasing.

> Consumers made emergency purchases of sugar which soon cleaned the shelves of retail and wholesale establishments. Increases of as much as 5 cents a pound were reported in many localities, while the average retail price in mid-September was 1.2 cents higher than in mid-August. Prompt release of quota restrictions by the Government brought the true supply situation to light and sugar prices began to come down, but it was not until May 1940 that retail prices were back at their pre-war level. Meanwhile, it is estimated, consumers paid about 42 million dollars more for the sugar which they bought than they would have had to pay if the war-scare inflation had been avoided.[25]

Relatively high sugar purchases with considerable hoarding continued throughout 1941.

The outbreak of war affected some imports at once. From August to September, 1939, cod-liver oil, a product largely imported from Norway and England, almost doubled in price. England had placed an embargo on its export.

The reaction of several basic commodities after the first three months of war is shown in Fig. 19. By the end of 1940, food prices in general were definitely beginning to move up. The passage of the Lend-Lease Act was an important factor. The possibility of sending food to famine-stricken areas of Europe remained in the background as a factor that might greatly increase the demands on food produced in the Americas. By the end of 1941, the prices of pork and some oils had made the most spectacular advance.

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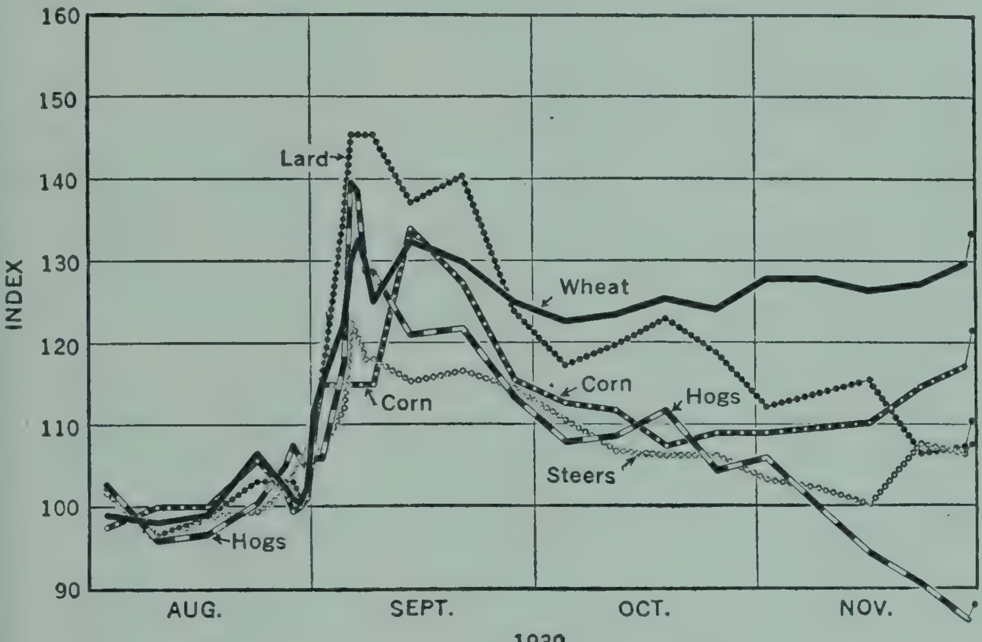
[25] U. S. Dept. Agr., *Report of the Consumers' Counsel,* 1940, p. 5.

In April, 1941, the Office of Price Administration and Civilian Supply was created with Leon Henderson as administrator. Included in it was



T.N.E.C. Investigation of Concentration of Economic Power, Hearings, Part 21, War and Prices, p. 11,059.

FIG. 19. Daily prices of basic commodities, 1939. For domestic agricultural products the average in August, 1939, was 100. Data were presented by I. Lubin, U. S. Department of Labor Statistics.

the Consumer Division, formerly of the National Defense Commission. By executive order the new agency was directed

> to take all lawful steps necessary or appropriate in order (1) to prevent price spiraling, rising costs of living, profiteering and inflation resulting from market conditions caused by the diversion of large segments of the nation's resources to the defense program, by interruptions to normal sources of supply, or by other influences growing out of the emergency; (2) to prevent speculative accumulation, withholding and hoarding of materials and commodities; (3) to stimulate provision of the necessary supply of materials and commodities required for civilian use, in such manner as not to conflict with the requirements of the War, Navy and other departments and agencies of the government, and of foreign governments for materials, articles, and equipment needed for defense . . . and (4)

> after the satisfaction of military defense needs to provide, through the determination of policies and the formulation of plans and programs, for the equitable distribution of the residual supply of such materials and commodities among competing civilian demands.

The Office of Price Administration and Civilian Supply was in addition instructed to "determine and publish, after proper investigation, such maximum prices, commissions, margins, fees, charges, or other elements of cost or price of materials or commodities, as the administrator may from time to time deem fair and reasonable; and to take all lawful and appropriate steps to facilitate their observance." [26]

At the outset the Price Administrator's power was largely limited to "jawbone control": urging, arguing, scolding, cajoling, persuading. Conferences were held with trade associations, wholesalers, and retailers. All sellers were urged to refrain from scare advertising. At times when price advances occurred, they were denounced as unjustifiable. On several occasions price advances of sugar and coffee were denounced. On one occasion a check on sugar prices came from increasing the quota to be imported from Cuba. Price ceilings were set for the wholesale prices of some foods and were effective in checking the upward rush of prices, even though power to punish violators of such orders had never been demonstrated.

The greatest pressure on any food seems to have been on sugar. The ease of hoarding sugar was an important factor, inducing advance purchasing. Retailers were ordered to hold down the price. Reports circulated that some retailers were requiring consumers to take $1.00 to $10 in groceries with any purchase of sugar.

By the end of 1941 the probability of a food shortage had become a reality. It seemed probable that only with careful husbanding of resources could adequate supplies be sent to Great Britain. The fat shortage was especially acute. Ways of checking waste in households became important as well as means of increasing the production of oil-bearing plants and animals. Wholesale price ceilings in December were placed on fats and oils.

The First Price-Control Act of 1942

After months of acknowledging that price-control legislation was necessary, an act was passed in February, 1942, which increased some of the powers of the Price Administrator and decreased others. It gave him power to fix certain prices; to prevent hoarding, profiteering, and speculating; to buy, sell, store, and use goods; to keep prices down or to increase supplies. The Price Administrator could, for example, "buy products from farmers at a price above the ceiling price which had been set and sell to consumers at the ceiling price, and the Government would make up the difference."[27]

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[26] *New York Times,* Apr. 12, 1941, p. 7.

Price ceilings could be put on non-farm products but not on wages. The Price Administrator's control of agricultural prices was made subject to the approval of the Secretary of Agriculture; this divided control is held by some to be very unsatisfactory. Furthermore, the act specified that no ceiling on farm prices could be set below the highest of four levels: (1) 110 per cent of parity, (2) the 1919–1929 average price, (3) price on October 1, (4) price on December 15, 1941. In addition, no price control was permitted for agricultural products covered by A.A.A. marketing agreements—milk for many areas is included therein.

The Price Administrator was empowered, however, to license commodity dealers; he could punish them by withdrawing the licenses of those guilty of price speculation, hoarding, or monopoly extortion. He was also given control over rationing—an important means of controlling price.

The minimum price ceilings that were authorized permitted a considerable rise in food prices over those prevailing at the time of the act. A minimum increase of 14 per cent in food prices over December, 1941, was possible. Such a rise would make food prices 29 per cent higher than in the 12-month period prior to September, 1939. The Secretary of Agriculture, in addition, was given the power to decree even higher price ceilings than the minimum prescribed in the act. The act was generally considered to be a victory for the farm pressure groups, especially for dairy and livestock groups.

It is important to note that the minimum price ceilings permitted are not stationary prices. If farm prices rise to 110 per cent of parity, the cost of living will rise. This will lead to pressure to increase wages. If wage increases occurred and these lead to an increase in the price of non-farm products, parity price for farm products would move to higher levels. So upward spiraling is possible.

A gleam of hope that price increases might be checked was introduced shortly after the passage of the act by the announcement of the Secretary of Agriculture that he would sell those commodities possessed by the government, for example, large stocks of corn and wheat, at less their parity price. In this way market prices for these products for the time being could be held below 110 per cent of parity.

To strengthen enforcement of the act a special court was created, namely, the Emergency Court of Appeals. Any objections to the decisions of the Price Administrator go to this court.

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[27] *Consumers' Guide,* Apr. 1, 1942.

The methods to be used in enforcing the act include:[28]

> The Price Administrator may go to court and get an injunction prohibiting people who are violating the orders or who intend to violate the orders from doing so. If the violation persists, the guilty persons may be arrested and sentenced to jail for contempt of court. . . .
>
> Violators may be prosecuted criminally. If convicted they may be punished with a $5,000 fine and a year in jail. . . .
>
> The Price Administrator may license people who sell goods or services. If some company violates an order after it has been licensed it will be warned once, and then if it continues to violate the order its license to sell the product may be suspended for 12 months. . . .
>
> If a consumer (not a man who uses a product in business) is charged more than the permitted price, he may sue the seller for $50. Or he may sue for 3 times the difference between the permitted price and the charged price if that amounts to more than $50. . . .

If the consumer does not wish to sue, the Price Administrator may bring suit on behalf of the United States.

In May, 1942, a general price order placed a ceiling on both wholesale and retail prices. Each store or firm has a separate ceiling based on the highest price for the various products during the preceding month of March. Stores were ordered to post the maximum prices of those items included in the cost of living index.

The price order covered about 60 per cent of all food. Omitted were certain seasonal foods, such as fresh fruits and vegetables, eggs, poultry, fresh fish and game, and restaurant meals. Not all meats were covered by the price order since for some meats farm prices had not reached the minimum ceiling which the Emergency Price Control Act allowed.

In 1942 sugar and coffee were the only foods rationed with coupons. Shortages of meats and fats have brought considerable debate as to whether to undertake the enormous task of individual rationing of these foods or to trust that the period of greatest shortage would be brief and that while it lasted voluntary rationing would be sufficient. In which cases in grocery stores and through other channels housewives would be urged to reduce their purchases of fats and meats.

As time went on it was necessary to raise the price ceilings on a good many foods. Among the early price-raising orders was that for canned fruits and vegetables for the 1943 pack. The price of fresh products had risen, the processors and various distributors were allowed to add to the cost of the raw products a certain margin. Retail prices on many foods had to be revised in order to avert vacant shelves in those cases where advance in wholesalers' prices had made it impossible for retailers to replace their stock and have a margin to cover cost.

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[28] *Consumers' Guide*, Apr. 1, 1942, p. 5.

Price control and rationing centers in the Office of Price Administration (O.P.A.). It is authorized to work through existing federal agencies. Both the Bureau of Agricultural Economics and the U. S. Bureau of Labor Statistics have been carrying on important investigations that bear on price administration. Ultimate control of food prices rests with the Secretary of Agriculture. In some matters the War Production Board (W.P.B.) enters in with priorities. For example, its order pertaining to sugar for the production of alcohol will determine how much sugar is to be rationed for consumption. The order drastically curtailing the use of tin cans for many foods, ranging from baking powder to dog food, came from the W.P.B. It also regulates the production of machines for processing soy beans and dried skim milk, for example.

In addition, the power to authorize consumer rationing of any food rests with the W.P.B.

Because hidden price increases can be secured by selling inferior quality at the ceiling price of superior quality, price fixing has brought increased demand for informative labeling. A step in this direction was taken by the Office of Price Administration during June, 1942, when all beef and veal were ordered to be graded. According to this order,[29]

> Government grades now called "prime" and "choice" will be combined into the new grade "AA." The present government grade known as "good" will be stamped "A," and will cover most of the better grades of beef and veal bought by housewives. The "commercial" grade will be stamped "B," and the "utility" grade will be stamped "C."

Information is not available to indicate the nature of the discussion which preceded the decision not to use established federal grades for beef and veal. The new grades adopted illustrate the reluctance of an industry involved to sell medium quality with a grade designation that clearly indicates that the product is not first class.

There is another defect in the meat-grading requirement. The ribbon stamping which marks the grade on all the major cuts of meat, as is customary in federal grading, is not to be used. It is doubtful how much of the grading information will be available to housewives in retail stores.

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[29] *Victory,* June 30, 1942, p. 12.

Food-Price Behavior

Food for the average family that cost $1.00 during the summer of 1939 cost $1.11 during the spring of 1941, $1.30 during the spring of 1942 and $1.35 during September 1942. From May 15, 1942, when the price-freezing order for many foods went into effect, until August 15, 1942, those foods whose prices were controlled rose 0.5 per cent and those with uncontrolled prices advanced 9.8 per cent. The prices of beef and pork, which were controlled, were reported to have declined slightly; whereas chicken, which was uncontrolled, advanced 16 per cent.

The Second Price-Control Act of 1942

In spite of the first price-control act early in 1942, danger of inflation continued. Civilian supplies were being reduced, especially in the non-food field; spending power was increasing rapidly; and prices of many products had risen sharply. The farm price index had risen from 93 in 1939 to 122 in 1941 to 160 in the third quarter of 1942. President Roosevelt in his Labor Day address to the nation demanded that the legislature provide more effective price control. Early in October new legislation was provided. Price ceilings were now permitted on 90 per cent of the total food budget, whereas earlier only 60 per cent of the food budget had been covered. The basic price levels were to be those prevailing September 15; the earlier clause, prohibiting minimum ceilings of less than 110 per cent of parity, was removed.

As the War Continues

As the war continues, adjustments in the economy affecting food are likely to increase. Shipment of food supplies abroad, both military and lend-lease, are likely to increase. This will probably reduce the amount available for civilian consumption. In addition, the level of spending power is likely to be maintained and may even increase somewhat. This in itself creates shortages. The meat shortage in 1942 was, for example, an income phenomenon. Even after military and lend-lease shipments were deducted, per capita meat supply for civilians was still greater than the average annual consumption of 1931 to 1940. Even if total supplies of food are maintained, there will be need for rationing.

Increased difficulty in maintaining food supplies is likely to occur. Food production during 1942 in the United States reached record levels. It was estimated to be 10 per cent larger than that of 1941, a record year, and to be 25 per cent larger than the average for the years 1935 to 1939.

What about future supply? The favorable weather of 1942 will probably not recur in the near future, and labor shortage is likely to increase although labor shortage for certain types of agriculture, existing in 1942, may be reduced through better organization of labor in general. The magnitude of the war effort even by the end of 1942 was raising serious questions concerning manpower in agriculture in general. From some quarters alarms were being sounded that food supply as a whole was being seriously threatened. Reorganization of many kinds was under discussion. At one extreme were those who urged various means, such as draft exemption and wage subsidies, to maintain and even to expand the main lines of agricultural production and to check migrations that were resulting in farm land lying idle. At the other extreme were those who felt that large quantities of manpower should be shifted out of agriculture, that production on the most efficient farms should be greatly expanded, and that it be concentrated on those types of production which yielded the nutrients needed and brought the least drain on the productive and fighting resources of the nation. The latter course calls for major changes and raises the specter of postwar complications. Time and failure to achieve successful prosecution of the war are both factors affecting acceptance of what calls for marked departures from status quo.

The longer the war continues, the greater the need for regulating both consumption and production. Likely to become more important are means of achieving fair sharing as well as education to secure increased use of many foods, some of which are unfamiliar to consumers. Fullest use of productive resources will become more and more vital. Barriers that interfere with efficiency will need to go. A right-about-face in the soil-conservation policy may be necessary, for example—we may have to use the fertility which we have been building up and hoarding. Efficiency in the household sense—a group acting together—must become the rule of the nation.

The Early Postwar Period

To some the end of the war symbolizes a return to normalcy, the end of the problems that have been thrust upon us by the war. Others see beyond the war, to a world in which industries are disrupted, in which productive capacity for peacetime living in the United States, and even more in war-torn countries, is at a low ebb. Because of widespread publicity of famine in many parts of Europe, there is an awareness that the need of shipping food abroad will not end with the war. It seems highly probable that the controls associated with the war economy must be projected into the peace economy in order that out of this turmoil will come a satisfactory peace.

Food War Agencies

Both the War Production Board and the Office of Price Administration have had a hand in food control along with the control of many other commodities and services. Two agencies, however, have been established which are primarily concerned with food. These are the Foods Requirements Committee, set up by the War Production Board and the Combined Food Board.

The Foods Requirements Committee is headed by the Secretary of Agriculture and will attempt to formulate national food policies. The basic function of the Combined Food Board is to integrate all phases of the food program of the Allies. It concerns itself with the coordination of information and plans and programs of the national governments. It is not to undertake any work that can appropriately be undertaken by the other food agencies of the different countries individually. It helps to introduce the international point of view, important in developing national policy. Committees of the different nations are brought together by the Combined Food Board. These two committees together may become nuclei for postwar planning. The feeding of devastated Europe as countries are freed from Nazi domination is, without doubt, an important part of their assignment.

V

Finale

32

The Evolving Social Order

With the world in a state of upheaval, with cataclysmic changes almost a daily occurrence, the pattern of the future lies below the horizon. Customary and traditional ideas of individual rights and responsibilities and of social agencies and the machinery of control are undergoing major changes. What will be evolved by current pressures and on forces laid deep in our society over many decades and even over centuries? Will the change through which we are passing aid us in breaking free from the outmoded customs of behavior and thought which have tended to bog us down? Is there danger of our discarding the useful as well as the useless customs and evolving agencies and procedures that will retard rather than promote progress?

In facing the future as it relates to providing adequate food for people, our assets are very conspicuous. Perhaps most important is a growing distaste for a failure to use productive resources fully. The war effort is demonstrating as never before the unused productive capacity which has existed. Out of the present effort should emerge increased knowledge of how to utilize resources more fully than in the past so that we are not perplexed, bewildered, and even a little fearful of the existence of power to produce. Furthermore, we shall undoubtedly derive benefits from the hearty respect which exists for fact finding as a means of solving problems. It is important, however, to overcome some of the lag that prevents a facing of the implications of the facts revealed. Agricultural resources in the form of fertile fields, competent farmers, and a high level of science and the technology of agriculture is without doubt adequate for the needs of our population. Other productive capacity is on a high level; so a generous supply of food is possible with little sacrifice in terms of other things consumers might want. In addition, there is a general acceptance of the idea that every citizen has the right to health, and there is widespread recognition that the food eaten has an important bearing on the level of health achieved. The science of nutrition is developed to a point where it has much to contribute, and year-to-year findings indicate that further important discovery in the near future will probably be made. The recommendations of this science await the development of social machinery that will incorporate what science says is "good" into the day-to-day life of the people.

On the liability side of our ledger we must put our failure to develop a means of getting a satisfactory distribution of income that will make possible a minimum health and decency scale of living for all families. On this side also we must put our tendency to overstress productive resources as a means of providing incomes rather than as a means of providing products, and hence too often to restrict output in order to raise the income of a given group of producers. Restriction of output may be a means of raising the level of welfare of a small group, but it fails to cope with society's need for increased production or full use of resources. This tendency we must lay to the low level of understanding of the functioning of the economy as a whole, which again and again has been a serious handicap in developing sound economic policy. There is also the failure to develop agencies responsible for viewing the functioning of the economy as a whole: Too much effort is going to piecemeal views of society. The war effort may provide the stimulus to inventive genius which will narrow somewhat this gap in our economic system.

Whatever else is ahead, it is obvious that foresight, resolution, and goodwill among men are essential qualities to progress.

In the immediate future looms years of war and postwar adjustment. Expanded incomes of American families plus shipments of food to Europe will undoubtedly have wiped out surpluses and greatly expanded certain types of agricultural production. As some measure of order is restored in Europe, need for food supplies from the United States is likely to decline even though export trade on the basis of relative efficiency is maintained.

Many questions arise. Basically, food problems as related to total supply go back to agriculture. Will it be possible for agriculture to be freed from the unsatisfactory control methods that were hastily devised in the early thirties and to discover better methods that will serve not only during the war but also in the postwar adjustment? In 1933, the need for checking disorganization was paramount. There was little experience on which to draw and important data were not available. Many of the outcomes of control were unforeseen because of incomplete knowledge.

Knowledge of agriculture, as well as of other parts of the economy, has increased greatly in the past ten years, but objectives as well as knowledge of an industry and control technique that might be used are important. The new controls established during the thirties, for the most part, were not accompanied by new objectives, and decisions were made by people accustomed to viewing the conduct of business as a means of deriving profit for firms rather than of achieving welfare. The regulations imposed clearly expressed the keen awareness, which for some time had existed, of the common interest of firms within a given industry. But little recognition appears to have been given to the interrelationship of various industries in society as a whole. This blind spot is a natural consequence of traditional economic philosophy, lack of important facts, and the kind of agencies and people who did the planning.

Marked postwar adjustments appear inevitable. It is highly important that there be developed general principles for guiding the adjustment of agriculture along with other industries. A few tentative principles are suggested. It seems highly desirable to accept the rule that price should be a guide in using productive resources, and further that income subsidy so far as possible should operate apart from prices. Price subsidy to encourage expansion in production of those foods needed to improve nutritional health might well have an important place. It seems especially urgent that impossible goals, such as parity price and income, be eliminated from policy and that goals be honestly stated and not allowed to seek cover in terms people wholeheartedly accept, such as soil conservation and the ever-normal granary.

Economy in the use of agricultural resources cannot be achieved apart from economy in other industries. In fact, one of the strong arguments in the minds of many people for restriction in production of food has been the existence of restrictions in other industries, whereby prices were maintained even at the social cost of millions of unemployed workers and idle machines. Disaster will surely be the fate of a society that persists in solving its income problems through restriction of production, or that accepts the general rule that the addition of another restriction will solve the problem created by those already existing. Support for a restrictive policy in agriculture and some parts of distribution has come to some extent from protected or sheltered industries that have hoped, by supporting controls and subsidies for an established group in agriculture, that their privileges would in turn be protected or extended. At the present time more than ever before, it is important to evolve methods for contracting and expanding industries as demand and supply conditions change.

Many signs exist to indicate that the social and political outlook is being reoriented to a clear recognition that prosperity is characterized by abundance and not by scarcity. Families that derive an income from agriculture, along with those in other industries, must search for means of securing a satisfactory scale of living without necessitating idle resources and the use of less-efficient methods.

During 1942 President Roosevelt proclaimed the war objective of the democracies. He envisioned a world in which "Four Freedoms" prevailed: (1) Freedom of speech and expression; (2) Freedom of every person to worship God in his own way; (3) Freedom from want; and (4) Freedom from fear. Food for people has a central place in freedom from want. There is a growing sense of community, national and international responsibility, that all persons be well fed. The broad survey of food contained within this book, it is hoped, will aid in formulating an agendum for developing economic and social organizations that will permit the sciences of nutrition and agriculture to make a contribution to the health of people throughout the United States and in lands beyond the seven seas.

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